



Montum Architecture, LLC  
37 ER Path  
Keyser, WV 26726  
304-276-7151

Department of Administration  
Purchasing Division  
2019 Washington St. E.  
Charleston, WV 25305

10/17/17 10:17:44  
Purchasing Division

SEALED BID: A/E Services for Tomlinson Run Bathhouse  
BUYER: Brittany Ingraham  
Solicitation Number: CEOI 0310 DNR1800000002  
Bid Opening Date: 10/17/2017  
Bid Opening Time: 1:30 pm EST  
FAX NUMBER: 304-558-3970

*Montum* Architecture, LLC

37 ER Path, Keyser, WV 26726 ● 304-276-7151 ● tom@montumarch.com  
montumarch.com



**Expression of Interest**  
**Tomlinson Run State Park Bath House Design**  
**CEOI 0310 DNR1800000002**  
**October 17, 2017**



**Department of Administration**  
**Purchasing Division**  
**2019 Washington Street East**  
**Charleston, WV 25305-0130**

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[montumarch.com](http://montumarch.com)



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October 17, 2017

Brittany Ingraham  
State of West Virginia  
Department of Administration, Purchasing Division  
2019 Washington St. E.  
Charleston, WV 25305

**Subject: Tomlinson Run State Park Bath House Design, CEOI 0310  
DNR1800000002**

Dear Ms. Rink,

Montum Architecture, LLC is pleased to submit this Statement of Qualifications to provide architectural and engineering services. Montum is headed by Tom Pritts, an architect with 14 years experience designing a multitude of project types. He will be the primary contact for the duration and provide all architectural design and construction administration services.

Noah Accord of EarthRes will be the structural engineer for the project. Tom and Noah have a common employment history, completing dozens of designs together. Montum has teamed with Miller Engineering, Inc. to provide mechanical, electrical, and plumbing design services. Tom and Craig Miller have worked on numerous projects together and share a common mantra: provide exemplary designs that function to the greatest extent possible for the budget constraints given. We feel that by striving to spend every project dollar to our best ability will inherently serve our client's best interest. Skelly and Loy bring civil and environmental engineering expertise to the team. Their extensive experience in water and wastewater treatment facilities and their proximity to the project are an asset.

Thank you for taking the time to review the attached information about the design team and we are grateful for your consideration.

Respectfully submitted,  
**Montum Architecture LLC**

A handwritten signature in black ink, appearing to read "Tom Pritts", is written over the company name.

Thomas Pritts, AIA, CSI-CCS, LEED-AP

*Montum* Architecture, LLC

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montumarch.com



### **Montum Architecture**

Montum Architecture, LLC was founded in 2017 to provide architectural design services to clients in West Virginia and western Maryland. Staff includes one licensed architect performing all tasks and duties. This ensures the utmost coordination of building plans and specifications with minimal potential for miscommunication.

### Communication

Tom Pritts will be the primary point of contact for Montum's architectural services. He will manage all correspondence and decision-making between the client, design team, and contractor.

### Project Budget

Previous work experience has shown a consistent +/-2% bid-to-budget ratio.

### Project Schedule

Montum will monitor and adjust the design tasks in order to complete the design work on the established timetables. They will also work diligently during project construction to maintain the contractual constraints placed as part of the contractor's bid.

### Applicable Experience

Tom Pritts has completed dozens of architectural works across the state. Due to the recent founding of the company, work experience is listed under the professional resume section. Miller Engineering has worked extensively with Tom on prior projects of all types. They have completed many successful projects of this scale together.

## Miller Engineering, Inc.

### Firm Profile

*Our engineered solutions involve a detailed assessment process: investigation, observation, communication with stakeholders, system analysis, building modeling and engagement from our entire team. We approach each and every project with this process and the guiding principle that buildings are designed to be livable and function in their intended purpose.*

*Over the past 13 years Miller Engineering, Inc. (MEI) has engineered solutions for over \$20.1M in mechanical system upgrades, repairs and renovations for projects of all scopes and sizes, with clients ranging from private owners to local and state governments.*

*With a strict attention to detail and commitment to delivering a job done well and done right the first time, every time, **MEI has accumulated a change order percentage of less than 0.1% over the past 8 years.***

*Our team has unique skill-sets regarding engineered renovation solutions. Each member of the team has hands-on mechanical system experience including installation, construction, design and maintenance.*

*Miller Engineering takes pride in being **different by design** and that difference shines through in all phases of our work and continued relationships with our clients.*

### Additional Benefits

- **Experienced and Licensed Professional Engineers**
- **Quality, Value-Engineered Project Delivery**
- **Qualified Construction Representative on Staff**
- **LEED-AP Certified**
- **Below Industry Change Order Status**
- **Building Information Modeling**
- **Interactive Solutions Provider**
- **Emergency Facility Response**

### Engineering Design and Consultation

- **Mechanical**
- **Electrical**
- **Plumbing**
- **HVAC Design**
- **Renovation**
- **New Construction**

#### Aquatic Facility Design

Public Pools & Areas  
ADA Compliance  
Indoor & Outdoor (air flow)  
Chlorination/Filtration

#### Construction Administration

Maintenance/Facility Improvement Plans  
Contract Administration  
Code Observation

#### Communication System

Intercomm & Public Address  
Voice/Data/CATV  
Urgent Response

#### Energy

Power Supply (main & backup)  
Green & Renewable Consulting  
Systems Utilization & Upgrades  
Sustainable Solutions

#### Facility Utilization

Systems Assessment & Solutions  
Adaptive Re-use  
Planning/Life-Cycle Control  
Engineered Replacement

#### Life Safety Inspection/Design

Fire Protection & Alarm Systems  
Access Control  
Fire & Electrical Investigation

#### Industry Experience

Education  
Local & State Government  
Commercial Development  
Healthcare  
Public Pools (indoor & outdoor)  
Department of Parks & Recreation

## FIRM OVERVIEW



### SKELLY AND LOY, INC. OVERVIEW

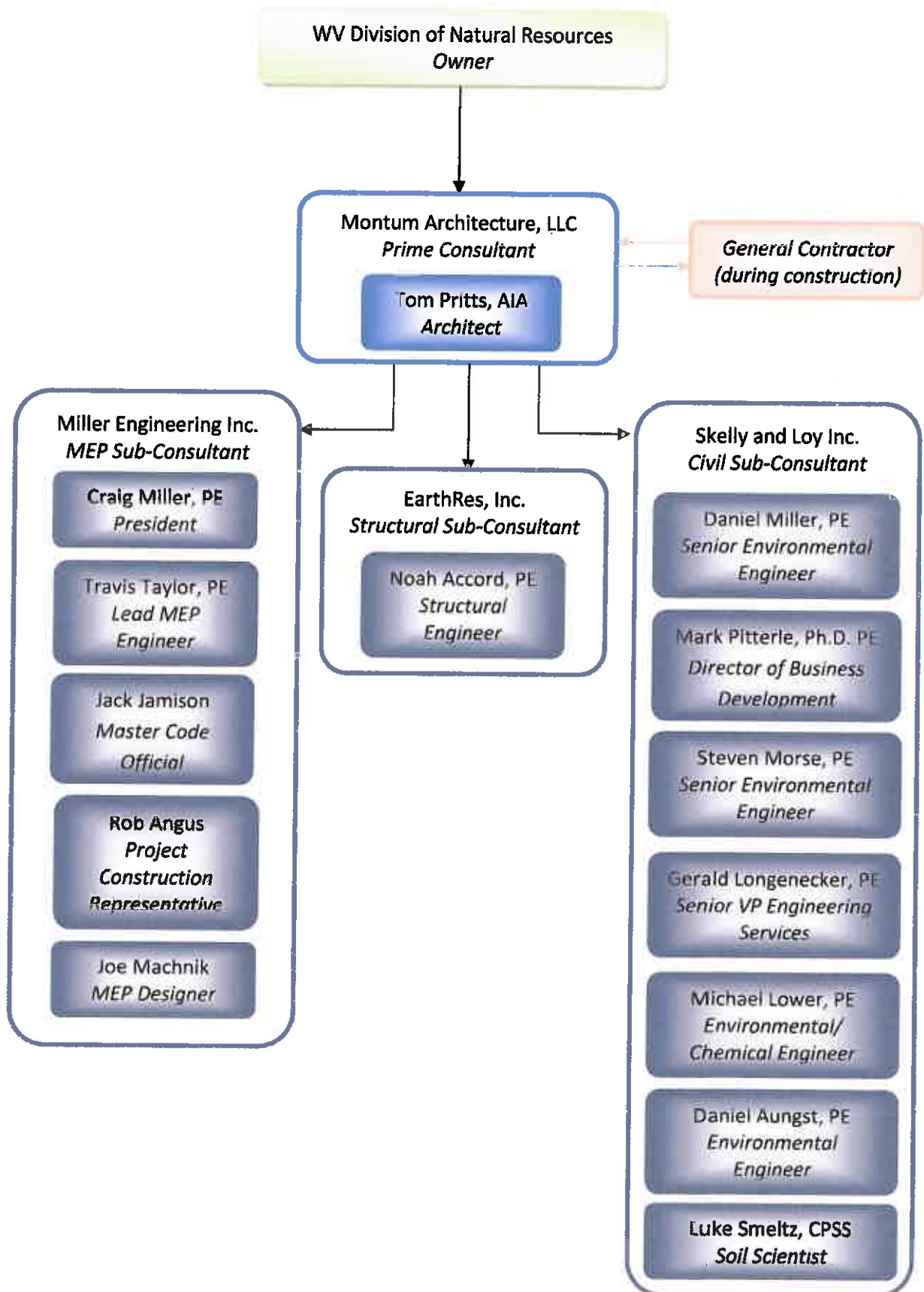
<b>Local Office:</b>	240 Scott Ave., Morgantown, West Virginia 26508
<b>Corporate Headquarters:</b>	449 Eisenhower Boulevard, Suite 300, Harrisburg, Pennsylvania 17111
<b>Business Designation:</b>	Woman's Business Enterprise (WBE) certified by the City of Harrisburg and Howard County (MD) and registered with the City of Philadelphia
<b>Point of Contact:</b>	Daniel Miller, P.E.
<b>Telephone:</b>	304-396-6500
<b>Cell:</b>	304-533-0669
<b>E-mail:</b>	dmiller@skellyloy.com
<b>Senior Leadership Team:</b>	Sandra Loy Bell, Chairman of the Board John W. Gunnett, P.G., President, Chief Executive Officer, Chief Operating Officer Gerald W. Longenecker, P.E., Executive Vice President – Engineering Services Sandra K. Basehore, Executive Vice President – Environmental Services James T. France, C.P.A., Chief Financial Officer

Established in 1969, Skelly and Loy, Inc. is a privately owned, mid-sized corporation employing more than 150 engineers, environmental scientists, geologists, historian/archaeologists, planners, GIS and CAD technicians, and support personnel in 6 Middle Atlantic offices. Through the course of our history, we have provided a wide range of professional civil, environmental, and mining engineering and environmental services to public and private sector clients throughout much of the United States and abroad. Skelly and Loy has ranked as one of the Engineering News-Record's Top 200 Environmental Firms in the United States and continues to build on this strong foundation and enhance its services. Our specific services include the following.

- **Civil, Environmental, and Mining Engineering:** Water, wastewater, watershed assessments, water quality sampling, green stormwater infrastructure, natural stream restoration, stream daylighting, stormwater best management practices, groundwater, civil site, acid mine drainage, hydrology/hydraulics, natural stream restoration, permitting, construction management, construction inspection
- **Environmental:** Permitting, noise and air quality, environmental compliance, wetlands, threatened and endangered species, National Environmental Policy Act documentation, cultural and historical resources
- **Geo-Environmental Engineering:** Hydrogeologic investigations; lead, asbestos, and mold assessments; management of underground storage tanks; industrial hygiene evaluations; hazardous waste investigations; Phase I/II Environmental Site Assessments
- **After Market Services (AMS):** Construction management; construction, inspection, operation, and maintenance of municipal water, stormwater, wastewater, stream restoration, and remediation treatment systems



# Project Organization Chart







### **Thomas Pritts, AIA, LEED-AP, CSI-CCS**

Tom founded Montum Architecture in 2017. He has more than 14 years experience in design, specification, and project management. During his employment with Alpha Associates, Tom has designed and managed dozens of built projects. His experience encompasses a wide range of projects including K-12 and higher education facilities, financial Institutions, emergency services buildings, and automotive dealerships. A native of Mineral County, Tom is member of the West Virginia Chapter of American Institute of Architects and was involved in the establishment of the US Green Building Council's West Virginia chapter. He is highly skilled in the design of complex building systems, technical construction detailing and specifying, and construction contract administration. These skills were critical in the development and maintaining of many multi-year, multi-project relationships with Clients in his previous employment.

### **Project Role: Relationship Manager – Primary Point of Contact**

- Principal in Charge
- Design and Project Management
- Concept and Construction Design
- Quality Assurance and Control

### **Professional History**

2017- Present	Montum Architecture	Architect
2004-2017	Alpha Associates	Associate and Architect
2003	Marshall Craft Associates	Architectural Intern

### **Education**

2004	Virginia Tech	Bachelors of Architecture
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### **Licenses and Certifications**

- Licensed Architect (West Virginia, Maryland)
- NCARB Certificate
- Construction Specifier Institute – Certified Construction Specifier
- LEED-AP Certified
- 30-hour OSHA Card

### **Professional Project Highlights**

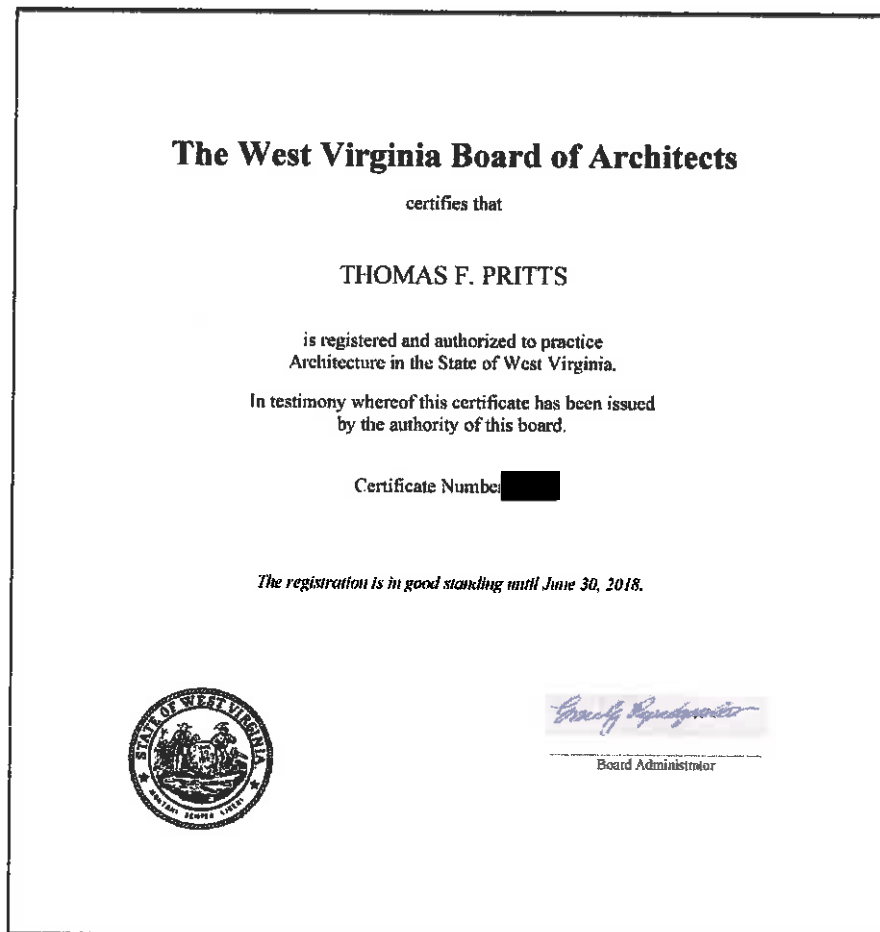
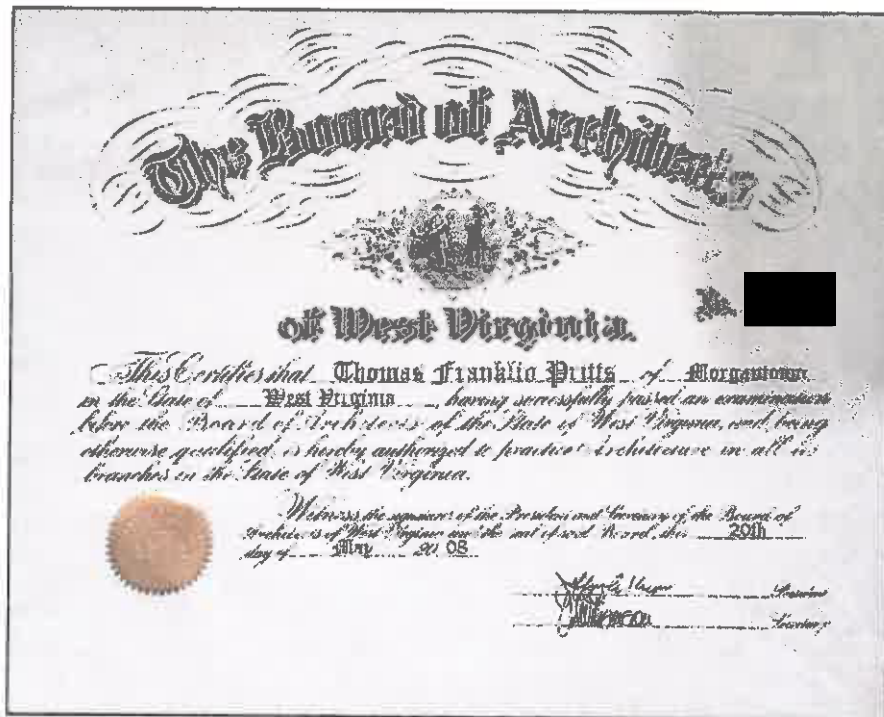
- Potomac State College – ADA Connector Building
- Potomac State College – Church-McKee Plaza
- Potomac State College – Shipper Library Façade
- WVU Engineering Sciences Building – East Wing Addition, 10<sup>th</sup> Floor Fit-Out, Basement Renovation
- WVU Engineering Research Building – G07 & G08 Renovation
- WVU Equine Education Center
- WVU College of Physical Activities and Sports Sciences/ Student Health Center
- WVU Center for Alternative Fuel Engines and Emissions
- WVU Colson Hall Water Infiltration Repairs
- WVU Mountainlair Water Infiltration Repairs
- WVU Chemistry Research Laboratories Fit-Out

# Montum



## **Professional Project Highlights (continued)**

- WVU Creative Arts Center Wheelchair Lift
- Alderson Broaddus University – Pyles Arena Deck Replacement
- Glenville State College – Morris Stadium Skybox
- Washington High School, Jefferson County Schools, WV
- Pineville Elementary School, Wyoming County Schools, WV
- Huff Consolidated School, Wyoming County Schools, WV
- Aurora School Addition, Preston County Schools, WV
- Riverview High Field House Design-Build, McDowell County Schools, WV
- Safe School Entries, Monongalia County Schools, WV
- Morgantown High Elevator, Monongalia County Schools, WV
- Monongalia County Schools 2010 Comprehensive Education Facilities Plan
- Wyoming County Schools 2010 Comprehensive Education Facilities Plan
- Clear Mountain Bank, Oakland, MD
- Clear Mountain Bank, Reedsville, WV
- Clear Mountain Bank-Kroger, Sabraton, WV
- Grant County Bank, Petersburg, WV
- Fairmont Federal Credit Union, Bridgeport, WV
- Freedom Ford, Kia, and Volkswagen Automotive Dealerships, Morgantown and Clarksburg, WV
- Jenkins Subaru Addition, Bridgeport, WV
- Elkins Fordland Renovation, Elkins, WV
- Elkins Chrysler Dealership, Elkins, WV
- Harry Green Nissan Design-Build, Clarksburg, WV
- Cool Green Automotive Addition and Renovation, Shepherdstown, WV
- Veteran's Affairs – OI&T Office Fit-Out, Shepherdstown, WV
- OPM, Eastern Management Development Center Addition, Shepherdstown, WV
- National Energy Technology Laboratory – Building B-8 Roof Replacement, Morgantown, WV
- US Coast Guard – Conference Room Renovation, Martinsburg, WV
- Eastern Panhandle Transit Authority Addition, Martinsburg, WV
- Cacapon State Park – Old Inn HVAC and Interior Renovation
- WV National Guard – Armory Office Fit-out, Parkersburg, WV
- South Berkeley Fire Station, Inwood, WV
- Jefferson County Emergency Services Agency – New Headquarters
- Berkeley County Ambulance Authority – South Station Renovation and Addition
- Poolhouse Renovation, McMechen, WV
- Community Center, Ridgeley, WV
- Wastewater Treatment Plant Renovations, Martinsburg, WV
- Public Works Building, Fairmont, WV
- Oatesdale Park Little League Fields, Martinsburg, WV
- St. Luke Canopy Replacement, Morgantown, WV
- Freshwater Institute – Aquaculture Building, Shepherdstown, WV
- Clarion Hotel Renovation, Shepherdstown, WV
- Shenandoah Village Apartments – Façade and Deck Replacement, Martinsburg, WV
- Regional Eye Associates/ Surgical Eye Center, Morgantown, WV
- Bavarian Inn – Infinity Pool/ Pool Bar, Shepherdstown, WV





### **B. Craig Miller, PE**

Craig founded Miller Engineering in 2003, and serves as President and Principal Engineer. He has more than 20 years experience in design, specification, operations and project management. During his employment with WVU, Craig was directly involved with approximately \$130 million in new capital construction. His experience with a wide range of projects including HVAC, electrical, plumbing, infrastructure upgrades, building automation, energy efficiency and maintenance/renovation, among others, allows him to serve in multiple capacities within a given project. Craig will serve as the main communication interface between the Owner, the design team, contractors and end users.

#### **Project Role: Relationship Manager – Primary Point of Contact**

- *Engineer in Responsible Charge*
- *Design and Project Management of Mechanical, Electrical, Plumbing Projects*
- *Concept and Construction Design*
- *Business Operations and Financial Management Oversight*
- *Quality Assurance and Control*

#### **Professional Project Highlights**

- Bobtown Elementary HVAC
- WVU Life Sciences Building and Student Recreation Center – Owner's Engineer
- Hawks Nest/Twin Falls HVAC
- Mapletown High School HVAC Replacement Phase I & II
- Advanced Surgical Hospital
- WV State Building 25 HVAC Piping Replacement
- WV State Building 36 HVAC Upgrades
- Cheat Lake Elementary & Middle School Renovations

#### **Professional History**

2003- Present	Miller Engineering, Inc.	President, Relationship Manager
2002-2003	Casto Technical Services	Existing Building Services Staff Engineer
2001-2002	Uniontown Hospital	Supervisor of Engineering
1995-2001	West Virginia University	Staff Engineer
1990-1995	BOPARC	Caretaker – Krepps Park
1983-1988	University of Charleston	Electrician/HVAC Mechanic

#### **Education**

1995	West Virginia University	BS- Mechanical Engineering
1988	University of Charleston	BA- Mass Communications

#### **Licenses and Certifications**

- Professional Engineer (West Virginia, Pennsylvania, Maryland, and Ohio)
- Licensed Master Plumber
- LEED-AP Certified



### **Travis Taylor, PE**

Experience in project management facilitates Travis's ability to create and design constructible projects. Prior to joining the Miller Engineering team he was directly responsible for managing \$10 million in electrical construction budgets. His experiences encompass both new construction and renovation. Travis maintains professional competencies by attending seminars and continuing education classes. As lead engineer he provides HVAC, mechanical, plumbing and electrical design solutions and services for our clients. In addition, he is part of our team's complete assessment process in both

planning and MEP design through construction administration.

#### **Project Role: Lead MEP Engineer**

- *Design of Mechanical, Electrical, and Plumbing Systems*
- *Building Information Modeling - Revit*
- *Constructible Materials Evaluation*
- *Site Evaluation and Mechanical System Review*
- *Submittal and RFP Review*
- *RFI Coordination, Review, and Response*
- *Construction Observation*

#### **Professional Project Highlights**

- Suncrest Middle Gym HVAC
- MTEC Welding Shop
- North Elementary Gym HVAC
- WV State Building 36 HVAC Upgrades
- WV State Building 25 HVAC Piping Replacement
- Bobtown Elementary School HVAC Upgrades
- Holly River State Park Primary Electric Service Replacements Phase I & II
- Pipestem Lodge McKeever Lodge HVAC Piping Replacement

#### **Professional History**

2011-Present	Miller Engineering, Inc.	Staff Engineer
2006-2011	Tri-County Electric, Co.	Project Manager
2006-2006	Schlumberger	Field Engineer Trainee - MWD

#### **Education**

2006 West Virginia University, BS – Mechanical Engineering

#### **Licenses and Certifications**

- Professional Engineer - State of West Virginia
- OSHA 10-hour Course: Construction Safety & Health

## Staff – Qualifications and Experience



### **Jack Jamison**

Jack brings 15 years as an electrical/building inspector and over 25 years of experience in the commercial electrical construction industry. His knowledge and experience are valuable resources to Miller's complete assessment process.

#### **Project Role: Master Code Official**

- *Facility Review, Code Research, Field Observations, Issue Resolutions, and Project Evaluation*

### **Professional History**

2010- Present	Miller Engineering, Inc.	Code and Construction Specialist
1999-2010	Megco Inspections	Chief Inspector
1972-1998	Jamison Electrical Construction	Master Electrician

### **Education**

1971 Fairmont State College, BS-Engineering Technology-Electronics

### **Licenses and Certifications**

- Master Code Professional, IAEI Master Electrical Inspector, Class C Electrical Inspector – WV, PA, MD, & OH
- ICC Commercial Building, Building Plans, Commercial Plumbing, Residential Energy, and Accessibility Inspector/Examiner
- WV Master Electricians License
- NCPCCI-2B, 2C, 4B, 4C: Electrical & Mechanical General/Plan Review
- OSHA 30 Hour Course: General Industry
- NFPA Code Making Panel 14 – NEC 2014 Edition





## Robert Angus

20 Years of maintenance, operations, and construction management precede Rob's engagement with Miller Engineering. Professional expertise of construction project management was gained as an owner of his own contracting company specializing in residential and commercial construction, electrical, plumbing, and HVAC projects. Rob's hands-on approach, common sense and valuable work history knowledge enables him to interface with construction personnel seamlessly alongside engineers and architects. He is adept at preventing and handling issues. Rob is involved at the estimation phase

to allow for continuity within the project's design and construction.

### Project Role: Construction Representative

- Construction Project Representation and Management
- Construction Administration
- Project Cost Estimation
- Submittal Review
- RFI, RFPCO Review and Response

### Professional Project Highlights

- MTEC Welding Shop
- Cheat Lake Elementary HVAC Upgrade
- Suncrest Middle School Gym HVAC Upgrade
- North Elementary School Boiler/AC
- Mapletown Jr./Sr. High School HVAC/Boiler Upgrade
- 3<sup>RD</sup> Party Construction Observation – Canaan Valley Resort
- Hawks Nest/Twin Falls HVAC
- WVU Research Building Office Renovation

### Professional History

2009- Present	Miller Engineering, Inc.	Project Construction Representative
2000-2009	Angus Contracting, LLC	Owner/Operator
1991-2000	BOPARC	Director of Maintenance

### Education

2000	Monongalia County Technical Education Center	Heating, Cooling, and Refrigeration Certification
1996	West Virginia University	Recreation and Parks Administration

### Licenses and Certifications

- Licensed West Virginia General Contractor
- Licensed West Virginia HVAC Contractor
- Certified HVAC Mechanical Contractor
- Licensed West Virginia Journeyman Electrician
- Licensed West Virginia Master Plumber
- OSHA 10-Hour Construction Safety & Health





### **Joseph Machnik**

Joe has experience with AutoCAD, MEP and Revit MEP. He provides design modeling, drafting and supervised design services and construction support for Miller Engineering.

#### **Project Role: MEP Designer**

- *Revit/CADD Coordination of New Construction and Renovation Designs*
- *Building Information Modeling*

#### **Professional Project Highlights**

- *Bobtown Elementary HVAC*
- *WV State Building 25 HVAC Piping Replacement*
- *Suncrest Middle Gym HVAC*
- *North Elementary Gym HVAC*
- *WV State Building 36 HVAC Upgrades*
- *Westwood Middle Cooling Tower*
- *Pipestem Lodge HVAC Piping Replacement*

#### **Professional History**

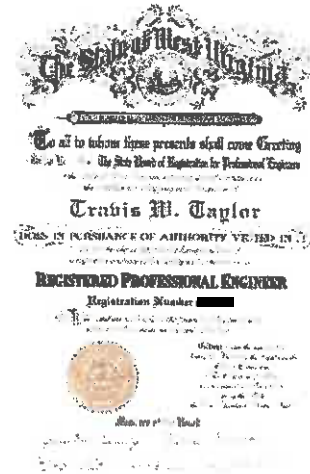
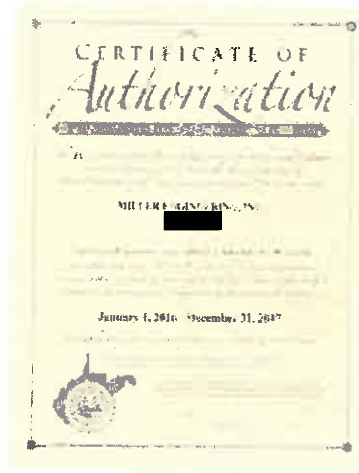
2010 – Present    Miller Engineering, Inc.    MEP Designer

#### **Education**

2008    Penn State – Fayette, AS - Building Engineering Systems Technology: *Building Environmental Systems Technology*

2007    Penn State – Fayette, AS - Building Engineering Systems Technology: *Architectural Engineering Technology*

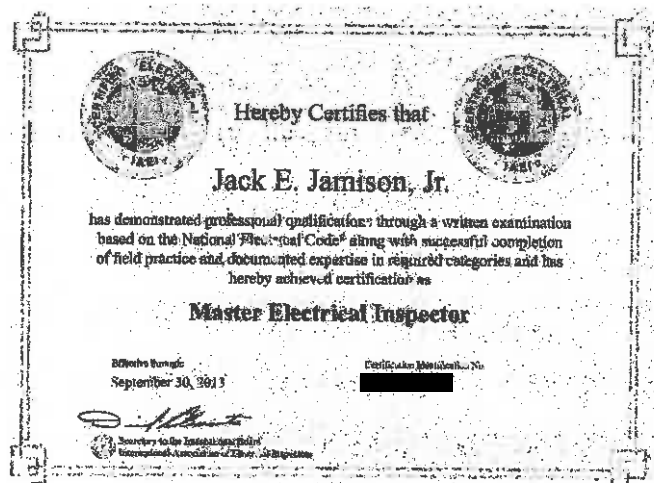
# Miller Engineering Licenses and Certifications



This is to certify that the above named **PROFESSIONAL ENGINEER** is in good standing with the State of West Virginia.



This is to certify that the above named **PROFESSIONAL ENGINEER** is in good standing with the State of West Virginia.



## DANIEL L. MILLER, P.E., Senior Environmental Engineer



### EDUCATION:

B.S., Engineering Physics/  
Chemistry, West Virginia  
Wesleyan College, 1978

Associate, Chemistry/  
Physics, Butler County  
Community College, 1976

### PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS:

Professional Engineer, PA,  
[REDACTED]

Engineer-in-Training, CO

OSHA 40-Hour Hazardous  
Waste Operations and  
Emergency Response  
Training

OSHA Hazardous Waste Site  
Supervisor

OSHA 10-Hour Construction  
Safety Training

AWWA - Risk Assessment  
Methodology for Water  
Systems

### PROFESSIONAL AFFILIATIONS:

American Water Works  
Association

Pennsylvania Rural Water  
Association

Pennsylvania Municipal  
Authority Association

Water Environment  
Federation

West Virginia Municipal  
League

### YEARS OF EXPERIENCE:

38 Years

A licensed Professional Engineer, Mr. Miller serves as a Project Manager and Design Engineer for the Environmental Engineering Services Group. He has combined experience in environmental and process engineering. His expertise is in the area of water, wastewater, and groundwater treatment systems. He has extensive experience with physical/chemical and biological treatment systems. He has experience with all aspects of the design and construction process. He has performed process design; detailed design; and equipment procurement, installation, startup, and troubleshooting activities. He has been responsible for the implementation and construction management for several projects at a variety of industrial and municipal sites. He has served as project manager for numerous treatment facility projects and has assisted with regulatory negotiations and the approvals process.

### PROFESSIONAL EXPERIENCE

Skelly and Loy is presently nearly complete with Region VI Planning and Development Council's Hazard Mitigation Plan. Region VI is composed of six counties and 39 municipalities. The Hazard Mitigation Plan involved close coordination with the Federal Emergency Management Agency (FEMA) and included the following key elements: regional profiles of each county, planning and stakeholder meetings, hazard identification and risk assessment, assessment of risk including storms, winds, and flooding, and implementation, management, and maintenance of mitigation plan. Dan Miller assisted with the plan development and coordinated key stakeholder meetings, particularly in Monongalia County.

**Domestic Wastewater Design and Management** - Mr. Miller has provided ongoing wastewater system engineering consulting for numerous existing municipal and privately owned permitted wastewater systems. He has served as the appointed Engineer of Record for various municipalities and authorities. Services performed include operations consulting, infrastructure management/capital improvement plan preparation, evaluation of collection system infiltration and inflow, capacity expansion (both collection and treatment) evaluations, budget and user rate evaluations, permit renewals, preparation of annual regulatory reports, evaluation of impacts due to new regulatory requirements, and design of new facilities or modification to the system infrastructure.

Services provided include management of site soil testing, planning document and permit application preparation, and design and implementation of the approved wastewater system. Mr. Miller has also evaluated options and designed wastewater systems to serve new developments or existing neighborhoods that exist outside of an existing central wastewater service area. Services include on-site testing, option evaluation and selection, permit application preparation, and system design and implementation.

**Industrial Wastewater Design and Waste Management** - Mr. Miller has provided industrial wastewater services for various clients. Wastewater services to industries include the evaluation and testing of wastewater sources, identification and quantification of contaminants of concern and wastewater volumes, development of wastewater volume and load reduction strategies, design of treatment and pre-treatment systems, and implementation of the selected solution. Whether the discharge is directly to surface waters or to a local POTW, effluent restrictions typically apply. Often, an evaluation of actual and potential wastewater surcharges versus the costs for implementing appropriate treatment systems is performed to help to select the most cost-effective management solution. Contaminants of concern have included



inorganic chemicals (often heavy metals), organic chemicals (often volatiles and solvents), and biochemical oxygen demand. Mr. Miller's experiences include physical/chemical, electro-chemical, and biological treatment processes.

**Potable Water Systems Engineering** - Mr. Miller has provided ongoing potable water system engineering and consulting for numerous existing municipal and privately owned public water systems. Serving as the appointed Engineer of Record, his services performed include preliminary system evaluations, operations consulting, infrastructure management/capital improvement plan preparation, capacity/expansion analysis (source, treatment, distribution, and storage), budget and user rate evaluations, permit renewals, evaluation of impacts due to new regulatory requirements, and design of new facilities or modification to the system infrastructure.

Mr. Miller's experience includes new sources and design of new systems for existing areas and new developments not currently served by a public water system. These services included identification of potential sources, evaluation of the source options, testing of the selected source, preparation of Public Water Supply permit applications, and preparation of design drawings for the construction of source, treatment, distribution, and storage facilities. His experience has primarily been within Pennsylvania and West Virginia, although it branches farther. He is experienced with West Virginia's Infrastructure and Jobs Development Council (IJDC) and its funding/approval process, the Pennsylvania Infrastructures Investment Authority (PennVest), and some of the federal programs such as Small Cities Block Grants (SCBG) and Community Development Block Grants (CDBG).

**Soil and Groundwater Remediation** - Mr. Miller managed or provided technical input on the evaluation, process design, permit application preparation, and installation of numerous soil and groundwater treatment systems. Soil treatment systems evaluated were soil vapor extraction, steam injection, excavate and dispose, in-situ soil washing, in-situ bioremediation, soil farming, soil incineration, and isolation. Groundwater treatment systems evaluated included carbon absorption, UV oxidation, packed tower aerators, low profile aerators, air sparging/vapor extraction, chemical precipitation, ion exchange, oil/water separation, and biological treatment.

Designs included detailed plans and specifications for installation of wells, extraction equipment, piping, controls, sensors and other instruments, buildings, and treatment equipment.

## PROJECT EXPERIENCE

### Potable Water

**Water Treatment System Construction and Startup, City of Romney, West Virginia** - Project Manager managed budgets, supervised construction management, performed the startup, and provided ongoing operation support for a 1.2 MGD surface water treatment system which included both physical and chemical pretreatment to remove turbidity, iron, and manganese followed by conventional sand filtration, chlorination, and fluoride addition. This project also included waterline extensions, construction of a new waterline, construction of a new intake, a 450,000-gallon additional storage tank, and computer controls with a telemetry system.

**Water System Improvements Project, Rivesville, West Virginia** - Project Manager and Engineer for preparation of the design and bid package for this \$5.1 million water improvement project which included line replacement, line extensions, addition of fire protection, a chlorine booster station, and storage tank work.

**Grant Application, Water System Improvements Project, Rivesville, West Virginia** - Project Manager and Engineer for preparation of the application to the West Virginia IJDC for this \$5.1 million water improvement project which included line replacement, line extensions, addition of fire protection, a chlorine booster station, and storage tank work. Funding requests totaled \$2,500,000 in grants and \$2,585,276 in a 0% interest 40-year loan.

**Harmony Borough Water Authority, Harmony Borough, Pennsylvania** - Engineering Consultant for a surface water treatment and distribution system rated for 216,000 gallons per day (gpd) production. Work consisted of meeting attendance, assistance with capital budget, permitting assistance, negotiations for inter-municipal agreements, preparation of plans and specifications for ongoing projects, and review of developer-proposed projects.





**Water Line Extension Projects, Design and Construction, Harmony Borough Water Authority, Harmony, Pennsylvania** - Project Manager responsible for designing, bidding, and providing construction support services for several waterline projects. These have included replacement of aged waterlines, stream crossing, and typical extension projects. Sought financing through PENNVEST.

**Claysville Donegal Joint Municipal Authority (CDJMA), Claysville, Pennsylvania** - Engineering Consultant for a surface water treatment and distribution system rated for 260,000 gpd production and a wastewater collection and treatment system rated for 160,000 gpd. The wastewater treatment system employs rotating biological contacts with chlorination/de-chlorination. Work consisted of meeting attendance, assistance with capital budget, permitting assistance, negotiations of inter-municipal agreements, grant application preparation, preparation of plans and specifications for ongoing projects, preparation of Chapter 94 reports, performing and documenting the annual dam inspection, and review of developer proposed projects.

**Long-Term Planning Study and Needs Analysis Report, Harmony Borough Water Authority, Harmony, Pennsylvania** - Project Manager assisted in the identification of the system's long-term needs and goals. Budgetary project estimates were developed for each identified project and the projects were ranked for priority of need.

**User Rate Analysis and Recommendation, Harmony Borough Water Authority, Harmony, Pennsylvania** - Project Manager who prepared a detailed financial analysis of the client's budgets, anticipated projects, customer base, and rates. Responsible for coordinating with the Authority and the team, identifying long-term needs, preparing estimated projects costs, and developing different rate structures for analysis by the financial subconsultant.

**Confluence Water System Improvements Project, Confluence Borough Municipal Authority, Confluence, Pennsylvania** - Civil Design Engineer for water system improvements of a new 100,000-gallon storage tank and 18,000 linear feet of new waterline. Duties included designing some the water treatment system and performing quality assurance and control reviews of the water system design.

**Operations Assistance, Water System, St. Francis College, Loretto, Pennsylvania** - Project Engineer for assistance in resolving operation problems encountered with the distribution system and water quality. On different occasions, problems with coloration and odor occurred for this 0.2 MGD plant. Mr. Miller assisted the water system personnel in identifying and resolving the cause.

**Permitting Assistance, Water System, St. Francis College, Loretto, Pennsylvania** - Project Engineer for assisting in obtaining a permit for NPDES discharge of backwash effluent and tank overflow for this 0.2 MGD plant. Mr. Miller assisted the facility's administrator in obtaining the permit.

**NOV Resolution, Pequea Valley School District, Lancaster County, Kinzers, Pennsylvania** - Project Manager and negotiator in addressing and resolving a violation of the Lead and Copper Act associated with the potable water system at the high school. Project included advising the District as to how to respond to the NOV and negotiating with the PA DEP for a resolution of the situation.

**Permitting Assistance, Pequea Valley School District, Lancaster County, Kinzers, Pennsylvania** - Project Manager to obtain construction and operations permits for five different water treatment systems providing water softening, nitrate removal, pH adjustment, and corrosion control for five different school buildings within the District. This work included specifying revisions to the existing systems and assisting the District to self-perform the recommended modifications. This work also included developing standard operating procedures for system monitoring and water quality sampling.

**Permitting Assistance, Franklin County General Authority, Chambersburg, Pennsylvania** - Project Manager and Engineer who prepared and submitted the modules required to obtain modification to the water supply permit for the Franklin County General Authority water treatment plant. The permit was to allow the use of potassium permanganate as a chemical oxidant for the removal of manganese from the raw water source. The water system is rated at 1.0 MGD treatment capacity. Treatment for manganese removal is occasionally required during inversion of the reservoir.



**Water System Improvements Project, Franklin County General Authority, Chambersburg, Pennsylvania - Civil** Design Engineer for preparation of design documents, plans and specifications, bidding and negotiation, construction phase engineering support, and the one-year follow up certifications for a backwash handling system to treat backwash and clarifier sludge to suitable levels for discharge to NPDES outfall and the sludge management system for the solids waste stream.

**Ebensburg Water Line Replacement Project, Ebensburg Borough, Ebensburg, Pennsylvania - Civil Design** Engineer for developing details for replacement of water mains within the project area for a larger sidewalks improvement project.

**Water Treatment Facility Installation, Alfred Merritt Smith WTP, Southern Nevada Water District, Las Vegas, Nevada - Project Engineer** who performed the construction management for the water filters (filter underdrain, support gravel, and filter media) for the multi-million dollar expansion of the existing 10 MGD plant to double the capacity to 20 MGD. Duties included performing all aspects of product verification testing and directly supervising construction activities for the filters.

#### Commercial/Industrial Water

**GenPower Longview Power Plant Engineering Services - Project Manager.** Led a design and permitting team which provided miscellaneous engineering services to support the GenPower Services, LLC Longview Power Plant project. Primary support was provided for permitting of the electric transmission lines, the power substation, and the financial closing.

**GenPower Humphrey Mine Water Allocation and WVDEP Permit Modification, Dunkard Township, Greene County, Pennsylvania - Project Manager.** Led a design and permitting team which conducted a feasibility study of Dunkard Creek as an alternate water source for cooling to the Morgantown, West Virginia, Longview Generation Plant. Based on the feasibility study, stream water allocation was established. The previously designed R.O. Treatment Plant and discharge were relocated to property adjacent to Dunkard Creek. PA DEP registration and permitting was completed.

#### Domestic Wastewater

**White Township Municipal Authority, Indiana, Pennsylvania - Engineering Consultant** for a wastewater system that includes 112,000 feet of gravity sewers, 14,000 feet of force mains, 1,200 manholes, 5 pumping stations, and 2 wastewater treatment plants. Work consisted of meeting attendance, assistance with capital budget, permitting assistance, negotiations of inter-municipal agreements, grant application preparation, preparation of plans and specifications for ongoing projects, preparation of the annual Chapter 94 reports, and review of developer-proposed projects.

**Indian Springs Interceptor Sewer Evaluation, White Township Municipal Authority, Indiana, Pennsylvania - Project Manager** for the design upgrades to the existing Indian Springs Interceptor based on recommendations made as a result of a previously performed evaluation of the interceptor condition and capacity. Hydraulic flow modeling software as well as land development software were utilized to assist in the designed upgrades. Approximately 11,000 feet of the interceptor were upgraded.

**Gravity Sewer Line Capacity Evaluation, Upgrade Design and Construction, White Township Municipal Authority, Indiana, Pennsylvania - Project Manager** responsible for performing an evaluation to determine the capacity and condition of the interceptor, project the future needs, and determine the upgrades/rehabilitation required to meet the future needed projections. This work was performed in conjunction with an update of White Township's 537 Plan to eliminate the need for separate planning requirements.

**Pump Station Replacement, White Township Municipal Authority, Indiana, Pennsylvania - Project Manager** responsible for coordinating field activities such as surveying, design, and construction management to replace the existing Erma Street Pump Station. The existing wet well was converted to a surge tank to provide storage capacity during an emergency power outage.



**Bedford Dwellings, Urban Redevelopment Authority of Pittsburgh, Pittsburgh, Pennsylvania** - Senior Civil Engineer for design of water, sewer, and roadway improvements based on design recommendations from the study of two projects. These projects included the analysis of the existing utilities and the subsequent design of the Phase 1A infrastructure improvements which encompassed eight square blocks within the City of Pittsburgh. Performed quality assurance and control reviews of the water system design.

**Industrial Wastewater Design and Waste Management**

**Encap Golf Resort Project, Encap Golf LLP, Lyndhurst, New Jersey** - Civil Engineer for this environmentally unique golf course on the site of a reclaimed landfill. Duties included assisting in the design and specification of an on-site water treatment system and performing quality assurance and control reviews of the water system design.

**NPDES Permit Renewal, Chestnut Ridge School District, Fishertown, Pennsylvania** - Project Manager and Engineer for the preparation and submission of the NPDES discharge permit renewal for the New Paris Elementary School Wastewater Treatment Plant. Project involved preparing the application and performing the Act 14 notifications.

**Evaluation of Best Management Practice for Duck-Raising Operations, Confidential Client, Southwestern Pennsylvania** - Project Manager and Engineer for the preparation of a Best Management Practice (BMP) evaluation for a duck-rearing operation handling between 14,000 and 18,000 ducks annually. Project involved investigation into relevant regulations and requirements for Concentrated Animal Feedlot Operations (CAFOs) and the appropriate BMPs, evaluation of the alternatives, and preparation of a final report.

**Wastewater Stream Evaluation of Scaling Potential, Quattro Associates, Inc., Confidential Client** - Project Manager and Engineer for evaluation of the Wastewater Treatment System and the scaling potential of the wastewater stream itself for a coal-fired cogeneration plant. The project involved documenting the existing wastewater treatment process, characterizing the wastewater stream, evaluating the Langelier Saturation and Ryznar Stability Indices, making recommendations for modification to the existing treatment process, and preparing a final report.

**Landfill Leachate Treatment System Design, Construction, and Startup, Duke/Fluor Daniel, Gary, Indiana** - Task Manager, managed budgets, supervised and assisted in the design, assisted with construction management, performed the startup, and provided ongoing operation support for a 0.2 MGD treatment system which included both physical and chemical pretreatment to remove free oils, iron, and manganese and biological treatment via custom-designed Sequencing Batch Reactors (SBR) to remove soluble organic compounds. This project included developing the entire controls and monitoring package using a PC-interfaced PLC capable of remote location monitoring and control.

**Wastewater-Activated Sludge Unit Process Design, Montana Refinery, Laurel, Montana** - As Project Engineer/Task Manager, developed the conceptual and process designs for a 0.3 MGD biologically based activated sludge unit (ASU) for a petroleum refinery. This project included upgrading the existing pretreatment facility and the inclusion of an anticipated new process stream and groundwater treatment stream in the basis for design. As part of this project, Construction Specification Institute (CSI) format performance specifications were developed to facilitate the vendor bidding and selection process.

**Wastewater-Activated Sludge Unit Startup, Chemical Manufacturer, Neville Island, Pennsylvania** - Project Engineer who served as a member of a "around the clock" start-up team for a new 0.2 MGD wastewater ASU (design by another firm) at a chemical manufacturing plant involving plasticizer and maleic acid wastewater streams.

**Wastewater Treatment System, SAS Circuits, Littleton, Colorado** - Project Manager and Engineer for the design, specifications, fabrication, installation, startup, and operator training for a metals removal system designed to remove and recover copper and lead from a printed circuit board manufacturer's waste stream prior to discharge to the local POTW.

**Production Facility Design, Advanced Mineral Technologies, Inc., Golden, Colorado** - Project Engineer who prepared and developed the preliminary design and engineering cost analysis for a full-scale production facility to





produce a granular product for the treatment of industrial wastewater containing soluble metals. Duties included identifying the process equipment and vendors, developing the design through the process flow diagram stage, and estimating the capital cost for the project (estimated at \$2 million plus).

### **Soil and Groundwater Remediation**

**Groundwater Treatment System, Reilly Industries, St. Louis Park, Minnesota** - Project Manager and Engineer for the conceptual and detailed designs, equipment specification and procurement, contractor selection, construction management, start-up and operator training, O&M manual development, and ongoing operations support for a 0.2 MGD physical/chemical treatment system at a former wood-treating facility. The process included chemical pretreatment followed by filtration for iron and manganese removal, then granular-activated carbon treatment for removal of soluble polynuclear aromatic hydrocarbons (PAH) and phenol. This project included regulatory negotiation to establish discharge criteria for a NPDES permit.

**Groundwater Treatment System, PRP Committee (Shore Realty Company), Long Island, New York** - Project Engineer/Task Manager responsible for managing design budgets and developing the design for an integrated subsurface remediation system at a former fuels blending facility/marketing terminal. This project included a groundwater "pump and treat" component, in-situ biological treatment, and air sparging/bioventing/soil venting with regenerative thermal oxidation of the off-gases.

### **PUBLICATIONS**

Lawrence, Alonzo Wm.; Miller, Daniel L.; Miller, Jeffrey A.; Raetz, Richard M.; and Hayes, Thomas D.; In-Situ Bioventing for Environmental Remediation of a Natural Gas Dehydrator Site: A Field Demonstration, to be presented at the 1994 Society of Petroleum Engineers (SPE Paper 28351), Annual Technical Conference and Exhibition, New Orleans, Louisiana, September 25-25, 1994.

Lawrence, Alonzo Wm.; Miller, Jeffrey A.; Miller, Daniel L.; and Hayes, Thomas D.; Natural Gas Industry Produced Water Treatment and Disposal Options, Presented at the University of Tulsa and Pennwell Books Environment/Issues and Solutions in Exploration, Production and Refining, Houston, Texas, March 2-4, 1994.

Lawrence, Alonzo Wm.; Miller, Jeffrey A.; Miller, Daniel L.; and Hayes, Thomas D.; Produced Water Treatment and Disposal Options in the Natural Gas Production Industry, Presented at the American Filtration Society Texas Chapter 4th Annual Produced Water Seminar, League City, Texas, January 20-21, 1994.

Smith, J. R., Chavez, R. P., Miller, D. L., and Gutierrez, M., Sand Filtration/Activated Carbon Treatment of Pumped Groundwaters from a Coal-Tar Superfund Site for NPDES Discharge. Presented at Water Pollution Control Federation 63rd Annual Conference, Washington, D.C., October 7-11, 1990.

Smith, J. R., Chavez, R. P., Miller, D. L., and Matsik, G. A., Sand Filtration/Activated Carbon Treatment of Pumped Groundwaters from a Coal-Tar Superfund Site for NPDES Permit. Paper to be Presented at the 23rd Mid-Atlantic Waste Conference, Pittsburgh, Pennsylvania, June 4-7, 1991.

### **CONTINUING EDUCATION**

- Alternative Disinfectants, Penn State University, March 2001
- Capacity Enhancement, PA Rural Water, March 2001
- Capacity, Management, Operations, and Maintenance (CMOM) Workshop, Water Environment Federation, April 2001
- Engineering Economy Course, Auburn University College of Engineering, September 2000
- Introduction to ArcGIS I, ESRI, May 2002
- Introduction to Watershed and WHPA, PA Rural Water, March 2001
- Long Range Planning for Small Systems, PA Rural Water Association, March 2001
- Preventing and Resolving Scope Creep, American Society of Civil Engineers, April 2003
- Project Work Plans: Why and How?, American Society of Civil Engineers, June 2003

**MARK T. PITTERLE, Ph.D., P.E., Senior Engineer**  
**Regional Director of Business Development**



**EDUCATION:**

Ph.D., Civil Engineering,  
2009, University of Colorado  
Denver

M.S., Environmental  
Engineering: Water &  
Wastewater Track, 2004,  
Virginia Tech

B.S., Earth Science: Minors in  
Geology & Geography, 2000,  
The Pennsylvania State  
University

**PROFESSIONAL  
REGISTRATIONS AND  
CERTIFICATIONS:**

Professional Engineer, OH,  
PA, VA, WV

**PROFESSIONAL  
AFFILIATIONS:**

iCATIS 501c3 non-profit  
Board Member

**YEARS OF EXPERIENCE:**  
17 Years

Dr. Pitterle is a Civil and Environmental Engineer with over 15 years of experience in design, construction, and installation of energy and water treatment systems. His expertise excels in water, wastewater, stormwater, and groundwater treatment and distribution/collection system design. He specializes in optimizing the long-term sustainability of urban and rural infrastructure by improving efficiency, performance, and waste-to-value byproducts. He employs proven life cycle project optimization that reduces operating costs and minimizes environmental impacts. His diverse experience spans green building and municipal infrastructure design to city-wide sustainability analysis. Dr. Pitterle has been involved in centralized, decentralized, household level, and point-of-use water, wastewater, graywater, and rainwater catchment treatment, renewable energy, and life cycle sustainability optimization design and planning projects for municipal, industrial, corporations, cities, and multi-state regional clients.

**PROFESSIONAL EXPERIENCE**

**West Mifflin Borough Municipal Separate Storm Sewer System (MS4) Permit, Pittsburgh, Pennsylvania** - Dr. Pitterle served as the Project Manager for preparing West Mifflin Borough's MS4 Permit including development of a Pollution Reduction Plan (PRP) to address nutrient and sediment impaired stream pollution within the Borough. Skelly and Loy developed and evaluated various Best Management Practices (BMPs) to achieve pollution reduction requirements. BMP selection was optimized to minimize costs and maximize pollution reduction and included stream restoration and green stormwater infrastructure approaches that reduce sediment and nutrient pollution while also reducing peak stormwater discharges to receiving streams.

**White Township Municipal Authority, Indiana, Pennsylvania** - Dr. Pitterle assisted with the quality assurance and quality control (QA/QC) of White Township wastewater and stormwater projects. His work included review of project budgets, plans, designs, and specifications. Skelly and Loy's staff is the Engineer of Record for White Township which operates a wastewater system that includes 112,000 feet of gravity sewers, 14,000 feet of force mains, 1,200 manholes, 5 pumping stations, and 2 wastewater treatment plants.

**Outside-In School Wastewater Treatment Plant (WWTP), Ligonier, Pennsylvania** - Skelly and Loy performed a feasibility study to expand capacity and add ammonia treatment to the existing WWTP. Skelly and Loy determined that the existing plant could not be expanded to meet permit requirements and consequently designed a new WWTP. Skelly and Loy led all permitting, design, and engineering during construction. Dr. Pitterle assisted with engineering during construction and WWTP start-up oversight.

**Preparedness, Prevention, and Contingency (PPC) Plan and Spill Prevention, Control, and Countermeasure (SPCC) Plan, Mount Morris, Pennsylvania** - Skelly and Loy prepared a new PPC Plan and an updated SPCC Plan for the Mining, Rock Excavation, and Construction, LLC. Skelly and Loy identified site hazards and approaches to prevent/minimize potential hazards including potential spills and use of existing safety equipment (e.g., eye wash, spill kits, etc.). Dr. Pitterle reviewed the plans, performed report QA/QC, and made recommendations for improvement.



**Design-Build-Operation of Treatment Plants for the UN Stabilization Mission, Haiti** - Project manager for a Design-Build-Operation project for two wastewater and one drinking water treatment plants for the United Nations Stabilization Mission in Haiti (MINUSTAH). Led design, materials acquisition, and construction oversight and oversaw operational and maintenance compliance. Also served as sustainability advisor for UN Director of Mission Support for ten bases.

**Denitrification Process Assessment and Life Cycle Comparison, City of Boulder, Colorado** - Assisted the City of Boulder wastewater treatment facility to develop life cycle comparison metrics and emission factors for their greenhouse gas (GHG) inventory including methanol and denitrification process and decision-making comparison.

**Water and Electricity Utility SIMS Deployment and GHG Inventories, Anaheim Public Utilities, Anaheim, California** - Project Manager for Anaheim Public Utilities' electricity and water utility Sustainability Information Management System (SIMS) deployment. Led evaluation of cost-effective, sustainable energy and water utility improvements while reporting effectiveness of six water and electricity utility rebate programs. Quantified City-wide weather normalized heating, cooling, and plug loads on a per parcel basis and compared City-wide building performance by weather normalized heating/cooling load per square foot of building area. Reprioritized utility program rebates by least cost per savings achieved (e.g., \$ invested per gal or kWh saved). Prepared City-wide Scopes 1 and 2 GHG inventories including water, wastewater, electricity, natural gas, solid waste, and transportation and recommended cost-effective city and utility GHG mitigation strategies.

**Life Cycle Assessment and Design Recommendations for Denver Metro Wastewater Treatment Plant Biosolids Processing, Denver, Colorado** - Performed detailed life cycle assessment and review of existing biosolids processing and land application processes. Developed life cycle cost, energy use, and GHG design impact comparison of alternative biosolids processing options, resulting in a published paper at Water Environment Federation Residuals & Biosolids 2010 Conference.

**Colorado River Basin Water Efficiency Collaborative Group Expert Panel Member, Colorado** - Was one of 20 panel members within the U.S. Colorado River Basin selected for multi-meeting stakeholder strategic planning for improving water efficiency across industry, households, agriculture, and Native American communities.

**Water, Wastewater, and Electricity Utility SIMS Deployment and Sustainability Assessments, Longmont, Colorado** - Project Manager for Longmont's electricity and water utility SIMS software tool deployment. Conducted Scopes 1 and 2 GHG Inventories for Longmont's water and wastewater treatment plants. Led quantification of water and electricity utility rebate program effectiveness, including per measure life cycle costs per savings achieved. Advised rebate and utility program optimization. Developed a pioneering approach to quantify indoor and weather normalized outdoor water use intensities (e.g., gal indoor/ft<sup>2</sup> building, gal irrigation/ft<sup>2</sup> turf) city-wide on a per-parcel basis.

**Water Utility SIMS Deployment, City of Fort Collins, Colorado** - Project Manager for a SIMS software tool deployment with the City of Fort Collins' water utility department. Assisted quantification of water and electricity utility rebate program effectiveness and led quantification of indoor and weather normalized outdoor water use intensities (e.g., gal indoor/ft<sup>2</sup> building, gal irrigation/ft<sup>2</sup> turf) City-wide on a per-parcel basis.

**Denver Metro Wastewater Reclamation District, Denver, Colorado** - Completed an energy, economic, GHG, and infrastructure sustainability life cycle assessment (LCA) for ten Front Range, Colorado, water and wastewater treatment plants detailing cost-effective asset management, energy efficiency, water conservation, and GHG mitigation strategies.





**EDUCATION:**

M.S., Environmental Engineering, The Pennsylvania State University, 1985

B.S., Civil Engineering, University of Maine, 1978

**PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS:**

Professional Engineer, PA, NJ, DE, MD, VA

OSHA Excavation Competent Person

OSHA HAZWOPER

**YEARS OF EXPERIENCE:**

37 Years

Mr. Morse has more than 37 years of experience in environmental, civil, and construction projects. This experience has been gained through involvement in the planning, process design, preliminary design, detailed design, and construction supervision and management for numerous engineering projects. Mr. Morse has managed and/or provided technical input on water reuse, surface water quality, potable water, domestic and industrial wastewater, soil and groundwater remediation, solid and hazardous waste and materials management, and land development projects.

**PROFESSIONAL EXPERIENCE**

**Potable Water Systems Engineering** - Mr. Morse has provided ongoing potable water system engineering consulting for numerous municipal and privately owned public water systems. Services include operations consulting, infrastructure management/capital improvement plan preparation, capacity expansion (source, treatment, distribution, and storage) evaluations, budget and user rate evaluations, permit renewals, evaluation of impacts due to new regulatory requirements, and design of new facilities or modification to the system infrastructure. Mr. Morse has developed new sources and designed new systems for existing areas and new developments not currently served by a public water system. These services include identification of potential sources, evaluation of the source options, testing of the selected source, Public Water Supply permit application preparation, and preparation of design drawings for the construction of source, treatment, distribution, and storage facilities.

**Surface Water Quality** - Mr. Morse has managed and assisted the preparation of stormwater and wastewater discharge (NPDES) permit applications for more than 30 clients. Preparation included review and compilation of historical discharge sampling results, sampling of existing outfalls, projection of future outfall parameter concentrations, completion of application forms, and performance of public and municipal notifications.

Mr. Morse provided technical input and field data collection for the design of stream relocation/rehabilitation projects using the Rosgen Fluvial Geomorphology Method. His designs included plans, profiles, sections, and details and schedules to define the stream route, width, depth, and slope; the energy dissipating structures; and fish and wildlife habitat structures.

Mr. Morse managed the development of an OPA-90 facility response plan for a large spill for a heating oil distributor located on the Delaware River as well as numerous spill response plans (PPC, SPCC, SPR) for various industrial, commercial, and institutional (schools and universities) clients. The plans included spill prevention and response planning and provided detailed instructions on location and types of oil collection devices required to contain spills and protect wildlife sensitive areas as well as instruction on the required downstream notifications.

**Industrial Wastewater and Waste Management** - Mr. Morse has provided industrial wastewater services for many clients. Whether an industrial wastewater is discharged directly to surface waters or to a local POTW, effluent restrictions typically apply. Wastewater services to industries include the evaluation and testing of wastewater sources, identification and quantification of contaminants of concern and wastewater volumes, development of wastewater volume and load reduction strategies, design of treatment and pre-treatment systems, and implementation of the selected solution. Often, an evaluation of actual and potential wastewater surcharges versus the costs for implementing



treatment systems is performed to help select the most cost-effective management solution. Contaminants of concern have included inorganic chemicals (often heavy metals), organic chemicals (often volatiles and solvents), and biochemical oxygen demand.

Mr. Morse has performed industrial waste reporting. Reporting of wastewater discharges, residual waste quantities, waste constituents, toxic reduction strategies, Tier II chemicals, and other waste reporting have been performed to comply with environmental and community right-to-know requirements. In addition, stormwater discharge reporting and inspections were performed and the related preparation of spill plans and hazardous substance survey forms was also performed. Where applicable, waste reduction strategies to save energy and costs were implemented.

**Domestic Wastewater Design and Management** - Mr. Morse has provided ongoing wastewater system engineering consulting for numerous municipal and privately owned permitted wastewater systems. Services include operations consulting, infrastructure management/capital improvement plan preparation, evaluation of collection system infiltration and inflow, capacity expansion (both collection and treatment) evaluations, budget and user rate evaluations, permit renewals, evaluation of impacts due to new regulatory requirements, and design of new facilities or modification to the system infrastructure.

Mr. Morse has also provided wastewater management consulting for environmentally sensitive areas. Wastewater regulations for areas with high concentrations of nitrate in the groundwater or that are designated as high quality or exceptional value watersheds typically restrict wastewater discharges. Mr. Morse has obtained approval for low impact wastewater systems. Systems approved and implemented include individual and community on-lot treatment and disposal, a zero discharge evapotranspiration greenhouse system, and spray irrigation systems. Services include management of site soil testing, planning document and permit application preparation, and design and implementation of the approved wastewater system.

Mr. Morse has evaluated options and designed wastewater systems to serve new developments or existing neighborhoods that exist outside of an existing central wastewater service area. Services include on-site testing, option evaluation and selection, permit application preparation, and system design and implementation. Options approved include individual and community on-lot systems, spray irrigation systems, a greenhouse evapotranspiration system, and central treatment with stream discharge.

**Water Reuse** - Mr. Morse managed and provided technical design for several water reuse projects. For stormwater reuse, Mr. Morse is lead engineer on a county-wide rainwater harvesting project in Maryland. The project involves the design of systems to collect rainwater from the roofs of county-owned buildings and treating and storing the water for reuse for irrigation, fire protection water, and vehicle and equipment washing. The project not only reduces the amount of stormwater runoff to the sewers and streams, it also reduces potable water use for these activities. These designs also include automatic systems to collect washwater to prevent discharge to surface waters.

Mr. Morse has also been involved in the concept design of a large wastewater treatment system for a planned development located upstream of a high quality wetlands. The systems evaluated included nutrient removal with spray irrigation and/or rapid infiltration for disposal and gray water reuse for a significant portion of the wastewater.

**Soil and Groundwater Remediation** - Mr. Morse managed and/or provided technical input on the evaluation, process design, permit application preparation, and installation of more than 20 soil and groundwater treatment systems. Soil treatment systems evaluated were vapor extraction, steam injection, excavate and dispose, in-situ soil washing, soil incineration, and isolation. Groundwater treatment systems evaluated included carbon absorption, UV oxidation, packed tower aerators, low profile aerators, chemical precipitation, ion exchange, and oil/water separation. Designs included detailed plans and specifications for installation of wells, extraction equipment, piping, controls, sensors and other instruments, buildings, and treatment equipment.

**Land Development Projects** - Mr. Morse managed and provided technical input on several land development projects. Land development services performed were preparation of land development plans, meeting with township officials, requesting zoning variances, preparing stormwater management plans, developing wastewater treatment options, and preparing the erosion and sedimentation plans. Mr. Morse has also evaluated wastewater and potable water system options for proposed developments.



**EDUCATION:**

M.S., Agricultural  
Engineering, 1980, The  
Pennsylvania State University

B.S., Agricultural Engineering,  
1979, The Pennsylvania State  
University

**PROFESSIONAL  
REGISTRATIONS AND  
CERTIFICATIONS:**

Professional Engineer, WV,  
MD, PA, NJ, DE, TN, NC, NM

**RELEVANT TRAINING:**

Rosgen Level I, "River and  
Stream Classification/Fluvial  
Geomorphology Stream  
Restoration" Short Course,  
Dave Rosgen, Professional  
Hydrologist, 1996

Rosgen Level II, "River  
Morphology and Applications"  
Short Course, Dave Rosgen,  
Professional Hydrologist,  
Pagosa Springs, Colorado,  
1997

Rosgen Level III, "River  
Assessment and Monitoring"  
Short Course, Dave Rosgen,  
Professional Hydrologist,  
Pagosa Springs, Colorado,  
1997

Rosgen Level IV, "River  
Restoration and Natural  
Channel Design" Short  
Course, Dave Rosgen,  
Professional Hydrologist,  
Pagosa Springs, Colorado,  
1997

**YEARS OF EXPERIENCE:**  
36 Years

A licensed Professional Engineer, Mr. Longenecker has 36 years experience dealing with the regulatory approval process in the environmental consulting field. This experience has been gained through the management and technical participation in a broad range of projects including stream restoration, watershed assessments, stormwater management, solid waste handling, industrial and sanitary wastewater treatment, dam safety, water resources engineering, and wetland-related evaluations. As Executive Vice President of the firm, Mr. Longenecker directs corporate engineering services.

**PROFESSIONAL EXPERIENCE**

**Potable Water Systems** - Managed the engineering design efforts associated with numerous potable water supply and distribution systems. Representative projects have included projects completed for the Philadelphia Water Department on numerous rerouting and looping efforts as part of potable water system infrastructure protection projects. Projects have included a new 100-foot span bridge to support a sanitary sewer pipeline with an associated relocation of a 24-inch potable water main routed underneath the stream channel and protected with grade control structures. Other projects have involved rerouting lines embedded in the subgrade of the roadway crossing deteriorating stone arch bridges. Additional municipal and private water distribution projects have involved designing additional storage structures, connection systems and pumps for supplemental water source connections to the existing potable water systems, storage tank sensors, well pump control and altitude valve upgrades and distribution system leak detection and repair.

**Domestic Wastewater Design and Management** - Mr. Longenecker has provided Project Management and technical oversight of several ongoing wastewater system engineering consulting for numerous existing municipal and privately owned permitted wastewater systems. Services performed include operations consulting, infrastructure management/capital improvement plan preparation, evaluation of collection system infiltration and inflow, capacity expansion (both collection and treatment) evaluations, permit renewals, and evaluation of impacts due to new regulatory requirements.

**Wastewater Treatment** - Managed the design of several pump stations involving sanitary wastewater systems serving residential, commercial, and light industrial areas and including submersible, self-priming, and wet well/dry application systems. One representative project served the Commerce Business Park office complex to provide sanitary wastewater conveyance to tie in to a public sewer system. The system consisted of duplex submersible pumps with integrated backup power generation. Assessed numerous malfunctioning wastewater systems and developed retrofitting and renovating programs to remediate the problems. Conducted analysis of impacts on the hydrogeological regime from discharges of wastewater. Analyses have involved Dupuit-Forscheimer, Colorado State, HELP, and other computer groundwater models. Managed the design of more than 200 land application systems involving a variety of developments and wastewater flows from a few hundred to 1.4 million gpd including subsurface, spray irrigation, and overland flow system.

**Acid Mine Drainage** - Managed the design of a mine drainage treatment system at a 1,000-acre coal mine. The project focused on the restoration of the impacted receiving streams and improving water quality sufficiently to support native aquatic life. Evaluated the economics and performance of chemical treatment and passive treatment systems used for treating degraded water quality at a reclaimed surface coal mine preparation plant in Alabama. Primary





drainage sources included a gob pile, slurry lakes, and upgradient abandoned mine lands. Managed a 1000-acre coal mine project dealing with a transition from an active operation to a reclamation status. Efforts included performing water balances, hydrogeologic assessments, NPDES permit revision negotiations, evaluation and design of passive mine drainage treatment systems, and general permit coordination with the federal and state regulatory agencies.

**Erosion and Sedimentation Control** - Prepared Erosion and Sedimentation Control Plans for a variety of developments. These have included temporary and permanent control features and have involved the use of several stabilization techniques. Performed an assessment of upstream tributaries to a recreational lake to evaluate sedimentation sources and loading and designed a water quality monitoring program which will result in the development of mitigation measures to address sedimentation pollution and other water quality impacts.

**Stormwater Management** - Managed the design of numerous stormwater runoff control facilities to minimize downstream impacts. Impacts included the control of flooding events and peak runoff rates, as well as to limit the pollutant and sediment loads experienced by downstream areas. Directed the analysis of stormwater control facilities applied to a 1,400-acre development site. Analysis was focused on evaluating innovative and alternative techniques which would enhance groundwater recharge while controlling pollutant loads. Supervised numerous watershed modeling projects using HEC-II models for developing design bases for culverts and bridge crossings.

**Solid Waste** - Evaluation of disposal alternatives for municipal sewage sludge being produced at a rate of 15-20 tons per day. Project Engineer for the design and permitting of a 500-ton/day solid waste transfer station and recycling facility. Project included offering testimony pertaining to the methods of separation and compaction, liquids containment, and the overall system operation. Designed a leachate-collection, recirculation, and treatment system for an 80-acre municipal waste landfill.

**Geotechnical Engineering** - Managed the design and construction of a four-million-gallon winter storage lagoon overlaying special concrete conditions with geofabric and hypalon. Conducted permeability testing during construction to ensure compliance with compaction specifications. Managed carbonate region site assessments to delineate sinkhole areas and develop remediation programs. Managed site testing program and data analysis for foundation design and secondary containment berms for a 0.5-million-gallon chemical storage tank. Managed soil boring and geotechnical laboratory programs in limestone regions to evaluate subsurface conditions for foundation and groundwater flow analysis purposes.

**Dam Safety** - Technical project coordinator for the design and construction surveillance of safety modifications performed on an earthen dam embankment and concrete spillway of a 100 acre-foot impoundment in Pike County, Pennsylvania, under the Pennsylvania Dam Safety Program.

**Environmental Assessments/Site Remediation** - Project Engineer for an on-site assembled oil/water separator used for the recovery of diesel fuel from the groundwater system. Spill was approximately 8,000 gallons. Managed an Environmental Risk Assessment required as a condition of a loan for a partially developed office park. The assessment included radon testing, an on-site inspection for potential spill areas, and review of the regulatory framework requiring compliance.

## PUBLICATIONS

- "Stormwater Attenuation and Gully Repair in Carpenters Woods, Wissahickon Valley Park, Philadelphia," Moses, T., Aungst, D., and Longenecker, G., AWRA Annual Conference, November 1-4, 2010, Philadelphia, Pennsylvania.
- "A Case in Study in Water Management Using Spray Irrigation"; Lakatos, David F. and Longenecker, Gerald W. ; presented at the 1982 Summer Meeting of the American Society of Agricultural Engineers; University of Wisconsin-Madison; June 27-28, 1982.
- "Land Application for a Countryside Campground"; Longenecker, Gerald W. and Zeigler, Alan L.; presented at the 1982 Winter Meeting of the American Society of Agricultural Engineers; Palmer House, Chicago, Illinois; December 14-17, 1982.
- "Passive Treatment of Acid Mine Drainage - A Mine Wastewater Treatment Alternative", David Turner, Gerald W. Longenecker and William C. Cantrell. Seventh Tennessee Water Resources Symposium, Nashville, Tennessee. February 24-26, 1997.





**EDUCATION:**

B.S., Chemical Engineering,  
1996, The Pennsylvania State  
University

**PROFESSIONAL  
REGISTRATIONS AND  
CERTIFICATIONS:**

Professional Engineer, PA,  
MD

**RELEVANT TRAINING:**

Rosgen Level I, "Applied  
Fluvial Geomorphology" short  
course, Wildland Hydrology,  
Pagosa Springs, Colorado,  
February 2003

Rosgen Level II, "River  
Morphology and Applications"  
short course, Wildland  
Hydrology, Pagosa Springs,  
Colorado, August 2003

Rosgen Level III, "River  
Assessment and Monitoring",  
Lubrecht Forest, August 2004

Rosgen Level IV, "River  
Restoration and Natural  
Channel Design", Elkin, North  
Carolina, April 2005

**YEARS OF EXPERIENCE:**  
22 Years

As a Chemical Engineer, Mr. Lower concentrates on designing wastewater and potable water treatment solutions for industrial, municipal, and residential clients. As a result, his project experience encompasses a broad range of treatment systems both in size and complexity. On such engineering projects, Mr. Lower has determined the physical, biological, and chemical characteristics of the influent including flow rates and constituents concentrations. His responsibilities have included evaluating flow data in regard to hydraulics, effluent requirements, mass loading and solids balance, environmental constraints, equipment availability, O&M and construction costs, and personnel and energy requirements.

He has completed design plans and specifications, which included process flow diagrams and design criteria, piping and instrumentation diagrams, and plan layout. In addition to designing new systems, Mr. Lower has increased efficiencies, corrected malfunctions, and retrofitted existing systems with new technologies.

**PROFESSIONAL EXPERIENCE**

**Potable Water Systems**

**St. Martin's Bridge, Philadelphia, Pennsylvania** - Mr. Lower was the staff engineer responsible for design of this project involving a new 100-foot span pedestrian bridge over Cresheim Creek which also supports a sanitary sewer pipeline, relocation of a potable water line routed underneath the stream channel and protected with cross rock vane grade control structures, and hydraulic analysis of the new bridge opening to model the reduced 100- and 500-year flood elevations that resulted from the increased hydraulic opening of the new bridge which replaced a deteriorating stone arch bridge.

**Caron Foundation, Wernersville, Pennsylvania** - Designed the connection system and pumps to connect additional water sources to the existing potable water system at this site. Design drawings and specifications were prepared for the connection of two additional wells to the existing potable water system. An upgrade of the chlorine injection system and the controls for the potable water system were also included in this design.

**Getty Property Corp., Intercourse, Pennsylvania** - Prepared three transient noncommunity public water supply permit applications for the installation of activated carbon units to remove methyl tertiary butyl ether (MTBE) from potable water sources at two small restaurants and a convenience store in the village of Intercourse. An investigation of the existing systems was performed, system sketches were prepared, and drawings and specifications concerning the proposed treatment systems were prepared. Meetings with PA DEP were conducted to assure that the provided systems would meet regulatory requirements.

**Orbisonia-Rockhill Joint Municipal Authority (ORJMA), Orbisonia, Pennsylvania** - Skelly and Loy is the consulting engineer for ORJMA for its potable water system and provides engineering as needed and requested by the authority. To date, Skelly and Loy has evaluated the connection of an existing well to the ORJMA system, piping and pumps at the existing well, capacity of the existing well and pumps, storage tank level sensor and well pump control replacement, distribution system water conveyance and leakage problems, and well pump emergency power issues. A capital improvements plan has been developed and the cost of connected an alternate well source was evaluated. Skelly and Loy also provided budget assistance and rate evaluation.



**Pennsylvania State University, Mont Alto Campus, Mont Alto, Pennsylvania** - Skelly and Loy evaluated, performed design, and prepared construction bid documents for various upgrades to the existing potable water system at this site. Upgrades included replacement of an existing altitude valve, installation of bypass piping around the existing altitude valve, replacement of chlorine feed piping, and relocation of a flow meter and readout. In addition, Skelly and Loy evaluated the water storage and distribution system and recommended piping changes to increase water turnover in the stand pipe and to assist flow through the distribution system.

#### **Municipal Wastewater Systems**

**West Donegal Township Act 537 Plan, Lancaster County, Pennsylvania** - Skelly and Loy prepared a Sewage Facilities Plan that included physical and demographic analysis and alternatives evaluation for present and future sewage needs. Mr. Lower served as an engineer on the project and coordinated field sampling of water supplies.

**Orbisonia-Rockhill Joint Municipal Authority** - Providing general municipal engineering services to this joint water/wastewater authority, which encompasses two Boroughs and one Township.

**Eagle Creek, Centre County, Pennsylvania** - For this 104-unit mobile home park, completed design and permit application for a wastewater treatment system with stream discharge.

**Grampa's Woods, Pike County, Pennsylvania** - To serve this planned retirement community, currently engineering a wastewater treatment system.

#### **Industrial Wastewater Systems**

**Allied Tube and Conduit, City of Philadelphia, Philadelphia County, Pennsylvania** - As Project Manager and Engineer, prepared biannual discharge reports for four outfall locations throughout the industrial manufacturing site. Supervised all sample collection, laboratory analysis, and data collection and provided a quality report detailing conditions observed at this site. Provided recommendations and suggested improvements as necessary.

**Quebecor Printing, Fairfield Borough, Adams County, Pennsylvania** - As Project Engineer, provided hands-on evaluation of industrial processes to determine wastewater produced at the plant. Tasks included reviewing MSDS sheets, inspecting all processes, evaluating operations, and analyzing wastewater characteristics. A comprehensive report was generated, recommending improvements and suggesting modifications to the operation of the facility.

**Flinchbaugh Engineering, Inc., Wastewater Treatment, York County, Pennsylvania** - As Project Engineer, conducted a system analysis and review. Industrial waste permitting with the local sewer authority, operations review, site inspection, and correction alternatives analysis were also performed.

**TTT Realty, East Greenville, Montgomery County, Pennsylvania** - As Project Engineer, performed hands-on evaluation of food process waste stream for contaminant removal along with wastewater treatment operations personnel. The evaluation tasks included reviewing laboratory analytical data and chemical treatment processes. Design of a chemical feed system was also performed.

**PP&L, Northampton County, Pennsylvania** - For this electrical utility, designed a small-flow wastewater treatment system which included a sewage pumping station.

**HF Campbell, Perry County, Pennsylvania** - Completed a background design for a washwater recirculation system. Components included two holding tanks, storage tanks, and a pumping station.

**Hershey Foods Corporation, Hershey, Pennsylvania** - Designed a complex piping system to install flow meters in an existing metering chamber for this chocolate and candy manufacturer.

**Park's Garbage Service, Huntingdon County, Pennsylvania** - Prior to construction of this waste transfer facility, designed a wastewater collection line with connection to the municipal sewer.

**TJ's, Inc., Liverpool, Pennsylvania** - Engineered a small-flow sewage treatment system for this restaurant.



**EDUCATION:**

B.S., Environmental Engineering, 2001, The Pennsylvania State University

**PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS:**

Professional Engineer, PA

**RELEVANT TRAINING:**

Rosgen Level I, "Applied Fluvial Geomorphology" Short Course, Asheville, NC, February 2004

Rosgen Level II, "River Morphology and Applications" Training, In-House Training at Skelly and Loy, Inc.

Rosgen Level III, "River Assessment and Monitoring" Training, In-House Training at Skelly and Loy, Inc.

Rosgen Level IV, "River Restoration and Natural Channel Design" Training, In-House Training at Skelly and Loy, Inc.

**PUBLICATIONS**

"Stormwater Attenuation and Gully Repair in Carpenters Woods, Wissahickon Valley Park, Philadelphia," Moses, T., Aungst, D., and Longenecker, G., *AWRA Annual Conference*, November 1-4, 2010, Philadelphia, Pennsylvania.

**YEARS OF EXPERIENCE:**  
17 Years

Mr. Aungst has more than 17 years of experience in environmental, civil, and construction projects. This experience has been gained through involvement in the planning, process design, preliminary design, detailed design, permitting, and construction phases of numerous engineering projects. Mr. Aungst has managed and/or provided technical input on wastewater, potable water, soil and groundwater remediation, stormwater management and surface water quality, solid and hazardous waste and materials management, stream and ecosystem restoration, and land development projects. During the design phase of these projects, Mr. Aungst utilizes his "hands-on" construction experience to provide value engineering services in order to develop pragmatic solutions and cost-savings alternatives. Mr. Aungst also provides construction oversight and technical support in the field during the implementation phase of these projects.

**PROFESSIONAL EXPERIENCE**

**Wastewater Design and Management** - Managed and/or provided technical input during the evaluation, planning, design, permitting, and construction phases of numerous wastewater treatment projects. These systems have ranged from residential systems to package treatment systems to large cast-in-place municipal treatment systems. Evaluated treatment options and costs for new systems, along with upgrades to existing systems. Designed and permitted numerous on-lot subsurface sewage disposal systems for residential and commercial applications in accordance with local and state guidelines. Designed and permitted numerous package treatment systems to serve residential developments, utilities, commercial establishments, recreational facilities, and small municipalities. Utilized various effluent disposal methods in conjunction with these package treatment systems, including drip irrigation, spray irrigation, stream discharge, on-site subsurface disposal, and discharge to evapotranspiration greenhouses. Designed and prepared permit applications for numerous upgrades to existing wastewater collection systems, pump stations, force mains, and treatment systems. Designed and permitted numerous collection and conveyance facilities to serve new land development projects. For all of these projects, the required sewage planning modules and permit applications were prepared and submitted to the appropriate regulatory agency for approval.

Evaluated infiltration and inflow impacts within an existing municipal wastewater collection system and developed a hydraulic monitoring plan to help to locate leaks and problem areas. Evaluated commercial discharge concentrations within an existing municipal wastewater collection system and developed an organic sampling plan and wastewater ordinance. Managed and/or provided technical input on the evaluation and design of several high-strength food service wastewater pretreatment systems. These treatment systems have ranged from solids, oil, and grease removal to aerobic treatment with chemical addition. Provided technical input for numerous industrial wastewater treatment system process designs. These systems were designed to remove copper, volatile organic chemicals, and BOD.

**Potable Water Systems Engineering** - Provided technical input for numerous potable water treatment system design projects. Projects have ranged from preparation of design plans and technical specifications for the construction of new water mains to minor modifications and upgrades to existing treatment systems serving small communities to large multi-source community water supplies. For these projects, potable water permit applications were prepared and permits were issued by the state regulatory agency. Engineering bid packages were prepared to publicly bid construction of the water systems.





Designed and permitted multiple potable water treatment systems including a filtration system for a potable water supply under the influence of surface water, an activated carbon treatment system for the removal of methyl tertiary butyl ether from an existing potable water supply, a filtration system for the control of manganese from an existing potable water supply, and a filtration system for the removal of arsenic from an existing potable water supply (in order to meet new regulatory standards). Designed and permitted upgrades to an existing treatment facility for the removal of nitrates from the potable water supply in order to meet regulatory standards. This project also required the design and installation of water softening equipment prior to treatment. Designed and permitted a new community water system consisting of multiple supply wells, well pumps and controls, distribution piping and appurtenances, treatment and monitoring equipment, finished water storage tank, and system controls. Evaluated and designed miscellaneous upgrades for numerous water sources, well piping systems, storage tanks, treatment systems, and distribution systems.

Performed water quality sampling, prepared annual Consumer Confidence Reports, prepared monthly and annual Water Quality Reports, provided annual budget assistance and rate evaluation, and conducted numerous well and water system inspections.

**Construction** - Mr. Aungst manages Skelly and Loy's in-house construction team during the implementation phase of numerous potable water, wastewater, stormwater, and environmental construction projects, many of which have been completed utilizing a design/build approach. In addition to overseeing on-site construction personnel and contracts/budgets, Mr. Aungst provides on-site engineering oversight, regulatory and landowner coordination, and technical assistance during construction of these projects.

**Stormwater Management and Permitting** - Prepared erosion and sediment control (E&SC) plans and NPDES stormwater permit applications for numerous stormwater, utility protection, and stream restoration projects. Managed and/or provided technical input on the preparation or renewal of NPDES discharge permit applications for numerous wastewater and stormwater projects.

**Land Development Projects** - Provided technical input on several land development projects including preparation of grading plans, coordination with township officials, requesting zoning variances, preparing stormwater management plans, developing wastewater treatment options, and preparing E&SC plans. Performed miles of land surveying for construction grade stakeouts, property boundaries, stream restoration projects, utility locations, and permanent structures. Provided construction oversight and inspection services for various wastewater, stormwater, and land development projects.

**Stream Restoration and Watershed Assessment** - Conducted numerous watershed-wide assessments and site-specific evaluations in order to identify and prioritize impaired stream reaches and sediment and/or pollution sources. Provided technical input utilizing fluvial geomorphic design principles on numerous stream restoration and relocation projects designed to create flood storage, reduce bank erosion, protect existing utilities (buried and overhead) and other infrastructure, and improve aquatic habitat in both rural and urban settings. Performed extensive field survey and data collection work contributing to the development of profiles, cross sections, and topographic plans for these projects. Provided technical input for the design and permitting of channel reconstructions, in-stream grade-control and habitat structures, utility crossings, and streambank stabilization features. Provided construction oversight and inspection services during construction of these projects, along with as-built surveying and post-construction monitoring.

**Environmental Remediation** - Provided technical input on the evaluation, process design, permit application preparation, and installation of several soil and groundwater treatment systems. Designs included detailed plans and specifications for installation of dewatering wells, monitoring wells, air injection equipment, extraction equipment, conveyance piping, process controls, and other treatment equipment. Developed detailed plans and specifications for the removal of contaminated soils, dismantling of an industrial waste treatment facility, decommissioning of numerous industrial waste sumps, and upgrade of existing underground storage tank systems.



**EDUCATION:**

B.S., Agronomy, 1987, The Pennsylvania State University

**PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS:**

ARCPACS Certified Professional Soil Scientist (CPSS) [REDACTED]

PA DEP Certified Sewage Enforcement Officer (SEO), # [REDACTED]

OSHA 1910.120 HAZWOPER Trained (40-Hour) with Annual 8-Hour Refreshers

Troxler Certified Nuclear Testing Gauge Operator

**YEARS OF EXPERIENCE:**

30 Years

Mr. Smeltz has over 30 years of experience investigating soils and making interpretations for on-site wastewater and solid waste disposal, wetlands delineations, stormwater management, cultural resources investigations, beneficial land application of wastes and biosolids, and environmental site characterization and remediation.

**PROFESSIONAL EXPERIENCE**

Mr. Smeltz has performed field investigations, often as principal investigator, on numerous projects to characterize and map the soils and subsurface conditions, and make interpretations for various on-site uses and natural and cultural resources assessments. He has extensive experience in performing site investigations for on-site wastewater (sewage) disposal systems, including test pit soil profile descriptions using United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) methodology, and percolation and permeability testing for both large community systems and individual residential systems. These investigations required a thorough understanding of soil morphology to identify limiting zones or restrictive horizons that would impact the downward infiltration of wastewater. He has performed many wetlands presence or absence determinations and field delineations for clients ranging from solid waste disposal facilities, gas and electric utility companies, the U.S. government, municipal wellhead protection areas, and other commercial and residential land development projects using United States Army Corps of Engineers (USACE) procedures. Some of these projects also required making a determination of the subsurface conditions or horizons supporting the wetland hydrology, in order to either avoid impacts or mitigate the impacts and restore the hydrology. He has also performed soils investigations for stormwater infiltration Best Management Practices (BMPs) for both residential and commercial developments, involving detailed soil profile descriptions and infiltration testing; and also for urban stormwater management systems utilizing subsurface infiltration galleries, bioswales, and rain gardens to manage urban runoff, much of which was previously conveyed into combined municipal sewer systems. Site investigations have also been completed to identify and quantify soil resources for both municipal and residual solid waste disposal facilities including soils mapping, detailed soil profile descriptions, and soil sampling for laboratory physical and chemical analyses. He has completed soils and geomorphology interpretations for Phase 1A cultural resources investigations on numerous project sites for highway and bridge construction, and floodplain stormwater management.

Mr. Smeltz also has substantial project experience in performing site characterizations including soil and groundwater sampling and monitoring; and also remediation of sites impacted by petroleum hydrocarbons, volatile organic compounds, and heavy metals. These projects were at industrial sites such as manufacturing and refinery facilities, and at military installations and major airports. He has logged and sampled soil borings and overseen monitoring well installations using various drilling methods. He has performed oversight of soil remediation/excavation projects and completed detailed confirmation sampling to document attainment of remediation standards while also supervising remediation subcontractors.

**PROFESSIONAL AFFILIATIONS**

Pennsylvania Association of Professional Soil Scientists  
American Society of Agronomy/Soil Science Society of America



## RELEVANT TRAINING

**HAZWOPER 8-hr Refresher Training (OSHA 29 CFR 1910.120), Hazard Communication Training (OSHA 29 CFR 1910.1200), Hazardous Waste Generator Training (EPA 40CFR 265.16), and DOT Hazardous Materials Training (DOT 49CFR 702.700-704),** Rettew Associates, March 17, 2017

**Lockout/Tagout Training (OSHA 29CFR 1910.147),** Cocciardi and Associates, Inc., July 15, 2013

**Riparian Systems: Ecology, Function and Management, Soil Science Society of America Webinar Short Course,** Dawn R. Ferris, PhD, PSS (MN), CPSS, Instructor, January-March 2013

**Shallow Limiting Zone At-Grade Absorption Area: PA DEP SEO Web-based Training Course #342,** March 06, 2012

**Alternate At-Grade Absorption Area: PA DEP SEO Web-based Training Course #341,** January 21, 2011

**Hazardous Waste Operations and Emergency Response Refresher, Mine Safety Refresher, First Aid and CPR:** Eichelberger's Safety Consulting Services, March 18, 2011

**Permit-Required Confined Space Entrant (OSHA Gen Ind., Subpart J),** Eichelberger's Safety Consulting Services, July 23, 2010

**Troubleshooting On-Lot Systems: PA DEP SEO Training Course #214, PSATS Training Center, Enola, Pennsylvania -** Gordon Sheetz, Instructor; January 21, 2009

**Site Testing and Evaluation: PA DEP SEO Training Course #211, Harrisburg, Pennsylvania -** Mark Mills and Gordon Sheetz, Instructors; May 31 and June 1, 2007

**Alternate Peat-Based Systems: PA DEP SEO Web-Based Training Course #332,** March 16, 2006

**Hazardous Waste Operations 8-Hour Supervisor Training (OSHA 1910.120): SAIC Online Self-Study Course,** evaluated by Michael Crenshaw, March 4, 2005

**Construction Inspection Techniques: PA DEP SEO Training Course #206, PSATS Training Center, Enola, Pennsylvania -** Gordon Sheetz, Instructor; February 16, 2005

**Soil Testing and Characterization for Stormwater Infiltration: Pennsylvania Association of Professional Soil Scientists Technical Session, Harrisburg, Pennsylvania -** Randy Greer, Delaware DNR; Thomas Cahill, Cahill Assoc.; Daniel Fritton, Ph.D., Penn State University; Edward White, CPSSc, PA State Soil Scientist; July 21, 2004

**Alternate Steep Slope Elevated Sand Mound On-Lot Sewage Disposal Systems: PA DEP SEO Web-Based Training Course #328,** November 20, 2003

**Alternate At-Grade On-Lot Sewage Disposal Systems: PA DEP SEO Web-Based Training Course #329,** July 25, 2002

**Alternate Drip Dispersion On-Lot Sewage Disposal Systems: PA DEP SEO Web-Based Training Course #321,** July 25, 2002

**Siting New On-Lot Sewage Treatment Systems by Assessing Infiltration Loading and Hydraulic Linear Loading Utilizing Soil Morphology: Pennsylvania Association of Professional Soil Scientists Technical Session, Harrisburg, Pennsylvania -** Darrell Fritz, CPSSc, and William Davis, PA DEP; Joseph Valentine, CPSSc; Jerry Tyler, Ph.D., University of Wisconsin; January 9, 2002

**Advanced Soils Training for SEOs: PA DEP SEO Training Course #109, Beltzville State Park, Jim Thorpe, Pennsylvania -** Mark Mills and Jason Fellon, Instructors; September 21, 2001



***Drip Irrigation: PA DEP SEO Training Course #312, Harrisburg, PA - Mark Mills and Gordon Sheetz, Instructors; March 14, 2000***

***Site Selection and Requirements for Drip Irrigation in PA: Pennsylvania Association of Professional Soil Scientists Technical Session, SAIC Learning Center of Applied Environmental Technology, Middletown, Pennsylvania - Thomas Ashton, CPSSc, American Manufacturing; Joseph Valentine, CPSSc; Edward White, CPSSc, PA State Soil Scientist; May 18, 1999***

***Permitting of Alternate and Experimental Systems: PA DEP SEO Training Course #108, Harrisburg, Pennsylvania - Mark Mills, CPSSc, and Gordon Sheetz, SEO, Instructors; March 3, 1999***

***Winter Wetlands Identification: SAIC Learning Center of Applied Environmental Technology, Middletown, Pennsylvania - Robert Hill, PA DEP Wetlands Botanist, Instructor; January 27-28, 1997***

***Winter Wetlands Identification: SAIC Learning Center of Applied Environmental Technology, Middletown, Pennsylvania - Robert Hill, PA DEP Wetlands Botanist, Instructor; January 27-28, 1997***

***Permitting of Individual Residential Spray Irrigation Systems: PA DEP SEO Training Course #303, Harrisburg, Pennsylvania - Mark Mills, CPSSc, and Gordon Sheetz, SEO, Instructors; June 11, 1996***

***Soil and Water Relationships: Pennsylvania Association of Professional Soil Scientists Technical Session, Hershey, Pennsylvania - Jay Lehr, Environmental Education Ent., Inc.; Mallory N. Gilbert, CPSSc; Mike J. Vepraskas, North Carolina State University; Maurice J. Mausbach, USDA-NRCS; H. Chris Smith, USDA-NRCS NTCHS; June 9-10, 1995***

***Competent Person Training in Excavation Safety (OSHA 1926, Subpart P): R. E. Wright Environmental, Inc., Learning Center of Applied Environmental Technology, February 18, 1995***

***Federal Regulations for Biosolids: The Water Pollution Control Association of PA., March 30, 1993***

***PA Sewage Enforcement Officer Certification No. 01958: Pennsylvania Department of Environmental Resources (PA DER), Board for Certification of Sewage Enforcement Officers, September 24, 1987***

***Hazardous Waste Operations 40-Hour Health and Safety Training (OSHA 1910.120): Phoenix Safety Associates, Ltd., R. E. Wright Environmental, Inc., Learning Center of Applied Environmental Technology, September 18, 1987 (with 8-hr Annual Refresher Training through 2017).***



## **Noah Accord, PE**

Noah has more than 12 years experience in structural engineering, design, specification, and project management. During his employment with Alpha Associates and EarthRes Engineering, Noah provided structural design and managed multiple built projects. His experience encompasses a wide range of projects including K-12 and higher education facilities, financial Institutions, emergency services buildings, natural gas facilities, and automotive dealerships. A native of Braxton County, Noah is a Licensed Professional Engineer in Pennsylvania and West Virginia.

### **Project Role: Structural Engineer**

- Structural Engineering and Design
- Concept and Construction Design
- Quality Assurance and Control

### **Professional History**

2015- Present	EarthRes Engineering	Project Manager
2005-2015	Alpha Associates	Associate and Structural Engineer

### **Education**

2004	University of Pittsburgh	B.S Civil Engineering
2005	University of Pittsburgh	M.S Civil Engineering

### **Licenses and Certifications**

- Licensed Professional Engineer (West Virginia, Pennsylvania)

### **Professional Project Highlights**

- Potomac State College – ADA Connector Building
- Potomac State College – Church-McKee Plaza
- Potomac State College – Shipper Library Façade
- WVU Engineering Sciences Building – East Wing Addition, 10<sup>th</sup> Floor Fit-Out, Basement Renovation
- WVU Engineering Research Building – G07 & G08 Renovation
- WVU College of Physical Activities and Sports Sciences/ Student Health Center
- WVU Center for Alternative Fuel Engines and Emissions
- Alderson Broaddus University – Pyles Arena Deck Replacement
- Glenville State College – Morris Stadium Skybox
- Washington High School, Jefferson County Schools, WV
- Pineville Elementary School, Wyoming County Schools, WV
- Huff Consolidated School, Wyoming County Schools, WV
- Aurora School Addition, Preston County Schools, WV
- Riverview High Field House Design-Build, McDowell County Schools, WV
- Safe School Entries, Monongalia County Schools, WV
- Morgantown High Elevator, Monongalia County Schools, WV
- Clear Mountain Bank, Oakland, MD
- Clear Mountain Bank, Reedsville, WV
- Clear Mountain Bank-Kroger, Sabraton, WV
- Fairmont Federal Credit Union, Bridgeport, WV
- Freedom Ford, Kia, and Volkswagen Automotive Dealerships, Morgantown, WV
- Jenkins Subaru Addition, Bridgeport, WV
- Elkins Fordland Renovation, Elkins, WV
- Elkins Chrysler Dealership, Elkins, WV
- Harry Green Nissan Design-Build, Clarksburg, WV
- Cool Green Automotive Addition and Renovation, Shepherdstown, WV

**Professional Project Highlights (continued)**

- OPM, Eastern Management Development Center Addition, Shepherdstown, WV
- US Coast Guard - Conference Room Renovation, Martinsburg, WV
- Eastern Panhandle Transit Authority Addition, Martinsburg, WV
- WV National Guard - Armory Office Fit-out, Parkersburg, WV
- South Berkeley Fire Station, Inwood, WV
- Jefferson County Emergency Services Agency - New Headquarters
- Berkeley County Ambulance Authority - South Station Renovation and Addition
- Community Center, Ridgeley, WV
- Wastewater Treatment Plant Renovations, Martinsburg, WV
- Public Works Building, Fairmont, WV
- Clarion Hotel Renovation, Shepherdstown, WV
- FBOP Hazelton Prison Medium Security Complex, Hazelton, WV
- Regional Eye Associates/ Surgical Eye Center, Morgantown, WV
- Bavarian Inn - Infinity Pool/ Pool Bar, Shepherdstown, WV



## Montum Architecture - Experience

Montum Architecture, LLC was founded in 2017 by Tom Pritts. Prior to that, Tom worked with Miller Engineering as a consultant on the following built projects (projects underlined were designed with Noah Accord as the structural engineer):

- WVU Creative Arts Center Wheelchair Lift
- Glenville State College – Morris Stadium Skybox
- Riverview High Field House Design-Build, McDowell County Schools, WV
- Clear Mountain Bank, Oakland, MD
- Clear Mountain Bank, Reedsville, WV
- Clear Mountain Bank-Kroger, Sabraton, WV
- Grant County Bank, Petersburg, WV
- Freedom Ford, Kia, and Volkswagen Automotive Dealerships, Morgantown and Clarksburg, WV
- Jenkins Subaru Addition, Bridgeport, WV
- Eastern Panhandle Transit Authority Addition, Martinsburg, WV
- Cacapon State Park – Old Inn HVAC and Interior Renovation
- WV National Guard - Armory Office Fit-out, Parkersburg, WV
- Jefferson County Emergency Services Agency - New Headquarters
- Berkeley County Ambulance Authority – South Station Renovation and Addition
- Poolhouse Renovation, McMechen, WV
- Community Center, Ridgeley, WV
- Public Works Building, Fairmont, WV
- Oatesdale Park Little League Fields, Martinsburg, WV

In order to protect his former employer's instruments of service, further documentation will not be included as part of the Montum submission. Additionally, references for Tom Pritts personal performance can be provided upon request.

## Descriptions of Past Projects Completed – Pool Repair

### Tomlinson Run State Park

New Manchester, WV

#### Services Provided:

- Mechanical
- Plumbing
- Pool Systems

Estimated Budget: \$850k

Facility Area: 15,000 ft<sup>2</sup>

Owner: West Virginia Division of Natural Resources



The existing pool was constructed in approximately 1980 by a local pool contractor. The owner indicated they were experiencing significant leaking and could not determine the precise cause. Additionally, the pool was experiencing significant cracking at the tops of the pool walls. The water slide was reportedly difficult to keep in operation due to various maintenance issues. The pool also had a rather unique CMU (concrete block) and tension rod wall configuration which was evaluated for the potential to perform an extensive repair. As part of the repair, the owner wished to significantly alter the depth profile of the pool and make the pool ADA accessible. The repair also included the installation of a new filtration system, gutter system, PVC liner and addressed several longer term maintenance concerns.

Project Contact:

Brad Leslie, PE

WVDNR Parks and Recreation

(304) 558-2764 ext. 51826

## Descriptions of Past Projects Completed – MEP

### Cacapon Old Inn

Berkeley Springs, WV

#### Services Provided:

- HVAC
- Plumbing
- Electrical

MEP Budget: \$98k

Facility Area: 5,500 ft<sup>2</sup>

Owner: West Virginia Division of  
Natural Resources



The Old Inn at Cacapon State Park is a popular lodging choice for large gatherings at the park. The Old Inn only had window AC and heating only through fire places. MEI designed a complete HVAC renovation which includes propane fired furnaces with DX air conditioning to serve the first floor common areas. The guest rooms on the second floor utilize mini-split system units, allowing for individual room control. The kitchen area was completely renovated including new appliances making it more useful for large gatherings.

The HVAC renovation required architectural and structural modifications to the facility. The guest rooms were updated with new furniture and bathrooms were undated as well. Great detail was taken to keep any modifications in-line with the historical component of the Old Inn.

Project Contact:  
*Debbie Demyan, Project Engineer*  
State Parks Section  
(304) 550-4892



## Descriptions of Past Projects Completed – MEP

### **Morgantown High School HVAC Renovation**

#### **Services Provided:**

- Mechanical
- Electrical
- Plumbing
- Fire Alarm

**Estimated Budget: \$1.0M**

**Contract Amount: \$1.038M**

**Owner: Monongalia County Board of  
Education**

**Status: In Construction**



Morgantown High school, like others throughout the state, has seen many changes through the years. Previous upgrades shifted heating load away from the steam boiler plant, resulting in the plant being significantly oversized to the load and operating with low efficiency. The 40 year old boilers have exceeded their operational life and are experiencing reliability issues.

Previous projects installed split DX refrigerant based systems in several classrooms within the science and technology wing. These units are obsolete and require replacement with a more reliable system, which can meet current ventilation standards. Additionally, there are 3 classrooms, which are heating only with little or no control, that require addition to the overall solution for this section of the building. MEI is evaluating multiple options for resolving these issues, included a preliminary master plan for any space recovered in the replacement of the boilers with much higher efficiency models.

This project is scheduled to be complete in  
Summer 2017.

Project Contact:  
*Robert Ashcraft*  
*Monongalia County Facilities*  
*Phone: (304) 291-9210*

## Descriptions of Past Projects Completed – HVAC Piping

### Pipestem McKeever Lodge

Pipestem, WV

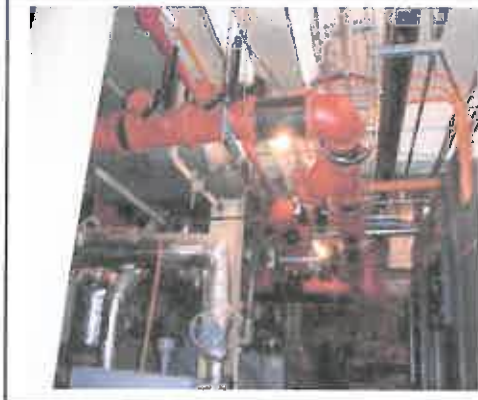
#### Services Provided:

- HVAC
- Plumbing
- Electrical
- Accommodation of Existing Systems

**Estimated Budget: \$1.7M**

**Facility Area: 63,000 ft<sup>2</sup>**

**Owner: West Virginia Division of Natural Resources**



The original HVAC piping at McKeever Lodge had exceeded its lifespan and had been suffering from corrosion leading to multiple leaks, including one causing an electrical service outage. Miller Engineering was hired to investigate the existing piping, discovering all of the piping required replacement. As this lodge is regularly occupied for larger conferences, the project had to be phased to minimize the amount of guest rooms taken out of service at one time. MEI also designed provisions to interconnect the lodge's two separate boiler/chiller plants so one plant could operate the entire lodge at a partial capacity while the other plant was replaced and re-piped. This interconnect also allows the lodge to operate in the event of a boiler or chiller outage. Power was provided to new equipment, and motor control centers were added to control the building loop pumps. A new building controls system was installed to allow the plants to run at optimum efficiency while meeting the lodges heating and cooling needs.

**Project Contact:**  
*Carolyn Mansberger, Project Manager*  
*State Parks Section*  
*(304) 558-2764*

## Descriptions of Past Projects Completed – Misc. Upgrades

### **Blackwater Falls State Park Lodge Upgrades**

**Davis, WV**

#### **Services Provided:**

- General Trades
- Plumbing
- Electrical
- Mechanical
- Pool

**Estimated Budget: \$1.1 Mil**

**Facility Area: 46,000 ft<sup>2</sup>**

**Owner: West Virginia Division of  
Natural Resources**



MEI has performed several projects at the Blackwater Falls State Park Lodge that cover many trades. Miller Engineering designed new HVAC systems for the dining room and make up unit for the Kitchen. The units were installed in a manner to not interfere with views of the park. The second floor plumbing piping was upgraded and routed out of the attic for freeze protection. The bathrooms were re-connected with new GFCI receptacles to eliminate nuisance tripping. New panel boards, hallway lighting, and hallway ceilings were installed as well. A MEI project which was just completed is the replacement and re-piping of the hot tub. The existing spa was leaking and had maintenance issues. A new hot tub was installed along with tiling. A new chemical and pump room was installed as well. Miller Engineering was recently contracted to design the replacement of the existing boiler system and convert them from steam to hot water. The project is currently in design and will include the construction of a boiler room.

#### **Project Contact:**

**Bradley S. Leslie, PE, Assistant Chief**  
**State Parks Section**  
**Phone: (304) 558-2764 ext. 51826**







## Diakon Youth Center Wastewater System Evaluation and Design Boiling Springs, Pennsylvania

**Client/Owner:**  
RGS Associates

Diakon Lutheran Social  
Ministries

**Project Value:**  
Firm Responsibility: \$200,000

**Completion Date:**  
September 2003

**Key Components:**  
Zero Discharge Wastewater  
System; Sewage Options  
Evaluation; Design/Build

**Reference Contact:**  
Mr. David Fralick  
Diakon Lutheran Social  
Ministries  
960 Century Drive  
P.O. Box 2001  
Mechanicsburg, PA 17055-0707  
P: 717-319-2986



The Diakon Youth Center (formerly known as the TresslerCare Wilderness Center) offers the unique experience of a residential treatment program combined with the challenges of outdoor activities and the wilderness for students at risk. In 2004, a more than \$2 million expansion project created a new dormitory, gymnasium, and classroom at this remote wooded facility. This expansion increased the number of students who could be served and therefore increased the wastewater generated at the center. The facility was originally served by on-lot sewage treatment disposal systems that were at capacity.

Skelly and Loy, Inc. performed a wastewater treatment and disposal system analysis for a proposed expansion at the camp. The evaluation included site testing, options evaluation, and selection of an appropriate treatment and disposal system. Alternatives evaluated were subsurface disposal, sand mounds, spray irrigation, rapid infiltration, and greenhouse evapotranspiration systems. Stream discharge was not considered since the center is situated within the watershed of a high quality stream.

The limited availability of suitable soils not proposed for other uses, coupled with the desire of the center to expand

the horticultural therapy program at the center, led to the selection of a greenhouse evapotranspiration system for the additional sewage generated by the expansion. The greenhouse system consists of pre-treatment by a Cromaflo package wastewater treatment system followed by sand filtration and spray irrigation within the greenhouse. There is zero discharge of wastewater to the ground, subsurface, or surface water, thus preserving the high quality of the watershed. Water is evaporated or transpired by plants and the water vapor is then released to the atmosphere by fans within the greenhouse.

Skelly and Loy performed the initial site assessment and testing, alternatives evaluation, and final system selection. We also prepared the sewage planning modules for approval by the two townships in which the center is located and then completed the final design and permit application for the construction of the system. Skelly and Loy's AMS Service Group installed the Cromaglass® treatment system and has provided ongoing operations assistance for the first four years until on-site operators were placed on staff.



## Hidden Valley Camping Resort Wastewater Treatment/Spray Irrigation System Design Union County, Pennsylvania

### Client

Hidden Valley Camping Resort

### Estimated Project Value

Design: \$64,500  
Installation: \$178,000

### Completion Date

Design: February 8, 2007  
Construction: January 14, 2008

### Key Components

Design/Build: High Quality  
Watershed Wastewater  
Treatment Design: Spray  
Irrigation Field Testing and  
Design: System Installation

### Reference Contact

Mr. David Hogg  
Hidden Valley Camping Resort  
162 Hidden Valley Lane  
Mifflinburg, PA 17844  
P: 570-966-1330



In 2007, Hidden Valley Camping Resort was a beautiful 140-acre seasonal campground located in Mifflinburg, Pennsylvania, comprised of 395 campsites, 3 residential homes, an office building and store, 2 bathhouses, and various outbuildings. Historically, wastewater generated at the campground was either treated in septic tanks with subsurface disposal or stored in tanks and hauled away by a permitted hauler. The cost for pumping and hauling the sewage was becoming prohibitive and was conducive to a potential spill.

Additionally, an unnamed tributary of Rapid Run, designated a High Quality Stream protected from degradation, passes through the middle of the campground. This watershed is also located within the Susquehanna River Basin and ultimately drains to the Chesapeake Bay. Wastewater management in a high quality watershed or within the Chesapeake Bay Basin can present unique problems, whether the objective is zero additional nutrient contribution to the Chesapeake Bay or no degradation of a high quality watershed.

At the request of the campground's owner, Skelly and Loy designed a sewage treatment and disposal system that would handle the anticipated peak wastewater flows at

the campground of up to 12,000 gallons per day. The constructed treatment system consists of a preliminary solids settling tank followed by a Cromaglass® package wastewater treatment system. The final effluent is pumped to four interconnected 6,000-gallon dose tanks where it is alternately pumped through five delivery lines to five distribution laterals consisting of 10 sprinklers, each, located in a 3.6-acre spray field. The spray field is a historic farm field of pine and spruce trees that are planted in almost perfect rows. This area was selected because of the excellent nutrient uptake capability of the spruce trees; a proven way to reduce nutrient impact to ground and surface water systems. The treatment system and spray irrigation system were installed by Skelly and Loy's AMS Service Group.

At Hidden Valley Camping Resort, the benefits of this wastewater treatment and spray irrigation system include eliminating the chance for spills during pumping and hauling, eliminating the transport of additional nutrients to the Susquehanna River and, ultimately, the Chesapeake Bay, a replenishment of groundwater resources, the promotion of lush growth, providing habitat and food for certain wildlife and enhanced growth of trees with improved timber value.



## Quakerwoods Campground Wastewater Treatment System Bucks County, Pennsylvania

### Client

Quakerwoods Campground

### Project Value

\$15,000/year

### Completion Date

Ongoing, Annual Service

### Key Components

Land Application of Sewage  
Wastewater Treatment Ongoing  
Operations

### Reference Contact

Mr. Tony Yu  
Quakerwoods Campground  
2225 Rosedale Road  
Quakertown, PA 18951  
P: 215-536-1984

### Project Manager

Stephen R. Morse, P.E.



Quakerwoods Campground is located west of Quakertown in Milford Township, Bucks County, Pennsylvania. The facility provides seasonal campground accommodations for recreational vehicles, travel trailers, and cabin and tent camping clientele.

Sanitary wastewater treatment facilities at the site are provided by an alternative land-based treatment system referred to as an overland flow slow-rate infiltration system. Wastewater generated from the campground is treated in a circular aeration basin. Treated effluent is then pumped using low pressure pumps to the upper end of one of two alternated sloped field areas. The fields were originally fine graded to a 2% slope and seeded with reed canary grass. Flows are distributed evenly across the head end of the fields through small diameter holes drilled in PVC piping. Applied waters infiltrate into the soil as the flows trickle down across the sloping field areas. Application rates and

prevention of runoff discharge are controlled by the duration of the application cycles.

Skelly and Loy, Inc. personnel have been the treatment system operators for the past several years. Additionally, a reassessment of the treatment system's capacity and effectiveness was performed to obtain planning approval of a campground expansion project. Skelly and Loy is also performing other engineering functions associated with this expansion project inclusive of wetland impacts permitting and land development plan preparation.

Skelly and Loy also performs annual operations of this wastewater system which includes regular visits and system adjustments, discharge monitoring report (DMR) preparation, and system performance evaluation.



## Camp Hebron Wastewater Treatment System Permitting, Design, and Installation Halifax, Pennsylvania

### Client

Camp Hebron, Inc.

### Estimated Project Value

Total \$300,000

### Completion Date

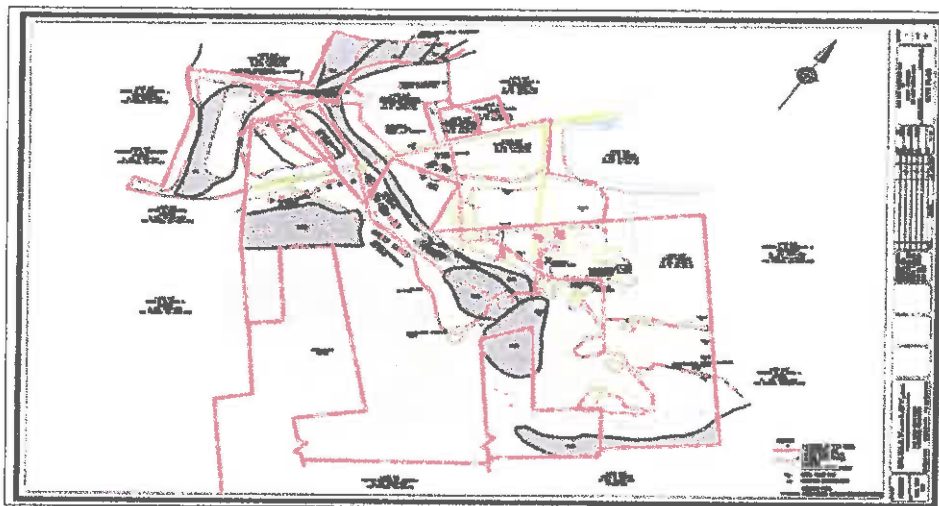
2004

### Key Components

Wastewater Management  
System Permitting and Design  
Cromaglass Treatment Facility  
Installation

### Reference Contact

Mr. Dustin Musser  
Executive Director  
Camp Hebron, Inc.  
957 Camp Hebron Road  
Halifax, PA 17032  
P: 717-896-3441



Skelly and Loy, Inc. was retained to evaluate long-term solutions for existing failing subsurface sewage disposal systems, as well as to determine management options for planned future development for this campground and retreat center. Skelly and Loy performed soil testing throughout the site to identify replacement and new subsurface disposal areas. However, the areas identified would require the removal of existing forest and regrading of existing slopes thereby disturbing the natural setting of this forested camp. Sewering of the camp with a centralized wastewater treatment facility was then evaluated to preserve the forested areas. This option was recommended by Skelly and Loy and was selected by the camp council.

Skelly and Loy performed the design and permitting for the approval of this proposed wastewater management system. The proposed system and permits were submitted for handling of the entire existing and future flows from the camp. The

implementation of the sewage facilities will be done in a phased manner as environmental operations and financial concerns dictated. Skelly and Loy prepared the planning modules, NPDES (discharge) permit application, and water quality management (treatment facilities) permit application for the proposed system. These permits were prepared so that connection of existing and future wastewater flows to the system can be performed without additional permits or approvals.

The final design of the system included over 5,700 feet of sewers as well as the proposed wastewater treatment facility. A Cromaglass treatment facility was selected due to its modular nature as well as its buried and noise- and odor-free characteristics. The plant was proposed in two phases so that capital expenditure for future facilities can be delayed until needed. Both phases of this treatment system was supplied and installed by Skelly and Loy, who also provides operations assistance to the camp.





## Sleepy Creek and Mountain Springs Developments Potable Water Design and Permitting, Ridge, Morgan County, West Virginia

### Client

Sovereign Homes, Inc.

### Estimated Project Value

Total: \$500,000

### Completion Date

December 2008

### Key Components

Planning, design, permit application preparation, construction and operations of potable water and wastewater treatment systems.

### Reference Contact

Mr. Wade E. Clements  
Sovereign Homes, Inc.  
16 Richards Avenue  
Winchester, VA 22601  
P: 540-662-6201



Skelly and Loy, Inc. was retained to provide the planning, design, permit application preparation, construction, and operations of potable water and wastewater treatment systems for two developments located approximately one mile apart along U.S. Route 522 in Morgan County, West Virginia. Initially, the two developments were considered separate projects needing their own potable water and wastewater systems. Alternatives for potable water supply and wastewater treatment were evaluated for each development, but it quickly became apparent that common water and sewage systems would benefit each development by reducing costs and the number of potable water wells. These two projects were combined from the water and sewage perspective, and work proceeded to design common systems.

### Water Source Evaluation

Skelly and Loy sited seven potential well locations at the two development sites, supervised the drilling of the wells, and has performed aquifer tests on three potential potable water wells. Skelly and Loy reviewed the development plan and estimated the peak day demand for the proposed facilities. In addition, a peak instantaneous rate was estimated. The target well yield was developed utilizing these estimates. The combined yield of these three wells is estimated to be over 800 gallons per minute, which far exceeds the minimum requirements. Water quality testing was also performed to assure potable water quality.

### Water Treatment Evaluation

In addition to this source development, Skelly and Loy evaluated the options for water treatment. The well water sampling determined that the water quality from each of these wells met all of the primary maximum contaminants levels (MCL) for drinking water. The water from one of the wells slightly exceeded the secondary MCL for iron, but this well was the lowest yielding well. When mixed with other source waters, the resultant water quality will meet the MCL for iron; therefore, only disinfection will be required to treat this water prior to introduction into the water distribution system.

### Water Storage and Distribution

The water storage and distribution system were also designed for this project. An elevated storage tank able to provide storage for at least one day of design average water demand while maintaining the required minimum water pressure in the distribution system was designed. A computer model of the water storage distribution system was created and used to show compliance with the potable water pressure and fire flow regulations. In the end, three supply wells at the Sleepy Creek Development will be utilized, with water storage located on top of the ridge to the east of the proposed development. A 10,000 foot water main will be installed along U.S. Route 522 to provide water service to the Mountain Springs development. Skelly and Loy prepared the permit application required for this project.

## Fairmont to Rivesville Water Supply Line Project Town of Rivesville, West Virginia

### Client

Town of Rivesville

### Project Value

Total: \$1,700,000  
Firm Responsibility:  
\$240,000

### Completion Date

Ongoing

### Key Components

Preliminary Application to  
IJDC; Funding Assistance;  
Design of Potable Water  
Supply Line; Survey;  
Permitting; Bidding;  
Construction Related  
Services

### Reference Contact

The Honorable James  
Hershman, Mayor  
Town of Rivesville  
42 Main Street  
Post Office Box 45  
Rivesville, WV 26588  
P: 304-816-7066



Skelly and Loy, Inc. was selected by the Town of Rivesville, West Virginia through the "5G" selection process to serve as the engineer for this water system improvements project. The project in question was originally identified by the Paw Paw – Route 19 Public Service District's (PSD) selected engineer. The PSD was investigating the possibility of replacing the supply line that runs from Hawkinberry Hollow to the Pleasant View area and parallels much of the recently upgraded lines installed by the Town of Rivesville. Also of concern was the main supply line that runs within Fulton Street/Trolley Street to Hawkinberry Hollow. This main supply line has significant water losses and hangs on various bridge structures. On the bridge structures, the line is not buried and is exposed to sunlight. Those portions of the line were replaced over ten years ago as an emergency repair and were not intended for long-term use or exposure. The overall physical

condition of the existing supply line is suspect.

The West Virginia Division of Highways (DOH) indicated that the lines needed to be removed from the bridge structures because the DOH intends to demolish these structures. According to the agreement between the PSD and the Town of Rivesville, maintenance of this supply line is shared by the Town of Rivesville and the Paw Paw – Route 19 PSD. The PSD's engineer suggested that the PSD consider tying into Rivesville's distribution system, eliminating the PSD's parallel supply line which runs beside Rivesville's system, and re-directing those monies toward the replacement of the main supply.

The project, as scoped by Skelly and Loy, identified replacing the existing 8-inch main supply line with a 10-inch line that will connect to the City of Fairmont's 16-inch main within Bellevue Avenue. Rather than following



the entire route of the existing line as proposed by the PSD's engineer, Skelly and Loy proposed using a route which runs through much of the City of Fairmont's service area before connecting to the existing water supply line route. The route was identified in cooperation with City of Fairmont's personnel as a preferred and potentially beneficial route to Fairmont. The intent of the project was to transfer ownership of those portions of the line to the City of Fairmont so that the City may convert it to distribution lines and eliminate much of the older and deteriorated redundant distributions lines within that

pathway while at the same time eliminating a parallel supply line which only served as an operation and maintenance cost to both the Town of Rivesville and the PSD. Because of the competing nature of the project with the application that had been submitted by the PSD, both projects were sent to the IJDC Consolidation Committee for consideration. The Skelly and Loy project was considered the better alternative and was selected to move forward.





## Town of Rivesville Emergency Water Supply Line Replacement Project Town of Rivesville, West Virginia

### Client

Town of Rivesville

### Project Value

Total: \$268,000

### Completion Date

January 2014

### Key Components

Revised Application to IJDC,  
Funding Assistance, Design  
of Potable Water Supply  
Line, Survey, Permitting,  
Bidding, Construction-  
Related Services

### Reference Contact

The Honorable James  
Hershman, Mayor  
Town of Rivesville  
42 Main Street  
Post Office Box 45  
Rivesville, WV 26588  
P: 304-816-7066



In 2013, Skelly and Loy, Inc. was selected as The Town of Rivesville's general services engineering firm through the 5G procurement process. The Town assigned Skelly and Loy the emergency replacement project as a task to complete. Skelly and Loy recommended to the Town that it would be in their best interest to add this work as a change order to the existing water system improvements construction contract for the following reasons.

1. They had an existing construction contract that was still active and open.
2. The construction contract in place had unit pricing which included the necessary work items to facilitate this emergency repair/replacement.
3. The work that was needed was an extension of or additional work to a specific line that was already partially replaced and upgraded within that existing contract (it was further footage of

replacement beyond the recently installed master meter).

4. In a practical sense, it was the only manner in which to accomplish this work within the required timeframe.

Skelly and Loy attended the progress meeting for the existing improvements project and presented this possible approach to that project engineer and contractor, both of whom agreed with this recommendation. The project engineer, CDI-Infrastructure, LLC, dba L. R. Kimball, agreed to subcontract to Skelly and Loy to provide the design and acquire the necessary work permits from the railroad and any engineering services required during construction. L. R. Kimball provided inspection services through their existing resident project representative. The contractor expressed interest in providing the necessary construction services and agreed to hold the unit pricing within their existing contract. It was late in the year, and the line needed





to be replaced before extreme freezing conditions would be encountered.

This was a 2-inch PVC line with a lot of history. It served eight customers along County Route 17 and was located on the opposite side of the Norfolk Southern Rail and of the Paw-Paw Creek from the main distribution system within that area. It was originally installed by a private individual in the mid-1950s.

The Monongahela Railway Company record documents indicate that a private individual obtained a permit on February 18, 1955, for the construction of the water line installation indicating that it was 1½-inches in diameter and contained within a 4-inch casing pipe where it crossed beneath the rail bed. The documents do not indicate the exact timeframe of the construction, but the proposed installation plan was dated 1957.

Over time, the private landowner permitted his neighbors to tie onto this line and through a private agreement; the costs of the water usage were divided. The line remained under private ownership, and the Town of Rivesville issued only one bill to the private citizen for whom the meter was registered.

Repair of leaks which had occurred over the years indicated that a new PVC line (installation circa 1983-1988) was installed within the rail bed ballast on the hillside of the rail tracks rather than the stream side of the tracks as was permitted and documented. Over time, the vibration from the rail travel caused the PVC pipe to wear and ultimately fail. It is suspected that the rail bed may have been realigned, and the line was now subsequently located within the ballast itself, immediately beneath the rail, making repair impossible. The Town had facilitated spot repairs in the past by hand

digging between the rail ties and replacing only short sections at any given time.

In conclusion, the Town was ordered by the PSC to assume ownership of the private line that was not built to any typical public standards. They were required to individually meter service lines located off this sub-standard installation and downstream of the master meter and to assume all costs associated with the maintenance, upkeep, and ultimate replacement of this sub-standard line.

During that water system improvements project, a portion of this line leading from the main distribution system up to and including the master meter was replaced. The master meter was located just before the steep decline to the railroad tracks and prior to the steam crossing. After installation of the master meter, a catastrophic failure occurred somewhere within the run which paralleled the rail tracks and was located underneath the rail and within the ballast.

Water losses were on the order of 75,000 gallons per day, representing a cost of approximately \$200 per day. An emergency work permit application was filed with the Norfolk Southern rail line and ten days passed prior to the rail company permitting repair activities to occur, representing an additional \$2,000 in unnecessary water loss. No one knows for certain how long the loss of this magnitude existed; overall it represents a water loss on the level of 2.25 million gallons a month or approximately \$6,000/month. Skelly and Loy designed an alternate route and crossing, obtained the permits, and facilitated the engineering during construction services. The work was completed prior to any significant freeze. The project was paid for by IJDC grant dollars.

## Potable Water Storage and Distribution System Upgrade Projects Pennsylvania State University, Mont Alto Campus, Franklin County, Pennsylvania

### Client

Pennsylvania State University

### Estimated Project Value

Total: \$25,790

### Completion Date

July 2008

### Key Components

Potable water storage and distribution system design

### Reference Contact

Mr. John Krause  
Pennsylvania State University  
Commonwealth Services  
325 Covered Bridge Road  
Pine Grove, PA 17963  
P: 814-280-6072



Skelly and Loy, Inc. designed various upgrades to the existing potable water storage and distribution system serving the Pennsylvania State University, Mont Alto Campus, in Quincy Township, Franklin County, Pennsylvania. These upgrades included the replacement of an existing altitude valve, the installation of bypass piping around the existing altitude valve, replacement of chlorine feed piping, and the relocation of a flow meter and controls. Following completion of the design phase, Skelly and Loy assisted campus personnel with the selection of a contractor and provided engineering oversight during construction. A final inspection was also performed, and construction invoices were approved by Skelly and Loy for this project.

In conjunction with the bypass pipe design and installation, Skelly

and Loy evaluated the existing water storage and distribution system and recommended piping changes to increase water turnover in the stand pipe and to enhance the flow through the distribution system. Following completion of a detailed options evaluation and cost comparison, Skelly and Loy recommended the installation of a new waterline extension to feed the water storage tank directly from the existing reservoir. Skelly and Loy was then retained to design the proposed six-inch diameter cement-lined ductile iron waterline extension recommended in the system evaluation. This design included the preparation of an Erosion and Sediment Control Plan as well as detailed design drawings, technical specifications, and a construction cost estimate. We also provided bid assistance, construction inspection services, and final construction certification on this project.

## Engineering and Environmental Consulting Services for the White Township Municipal Authority, Indiana County, Pennsylvania

### Client

White Township Municipal  
Authority

### Project Value

Total: >\$1,000,000

### Completion Date

Ongoing

### Key Components

Site Assessments; Wetland  
Assessments; Engineering  
Design; Permitting; Preparing  
Design Documents; Bidding  
Assistance; Construction  
Oversight; Post-Construction  
Site Assessments and  
Monitoring; Construction  
Related Services

### Reference Contact

Mr. Milton Lady,  
Township Manager  
White Township  
Municipal Authority  
950 Indian Springs Road  
Indiana, PA 15701-3506  
P: 724-463-8585



Since 2012, Skelly and Loy has been appointed annually as the Township's Engineer of Record for the Municipal Authority. The Authority operates the Township's sewer system. Through the "537 Planning" process, Skelly and Loy has worked with the Authority to identify improvement projects for completion each year. When we started, the Authority operated approximately 112,000 feet of gravity sewers, 14,000 feet of forced mains, 1,200 manholes, 5 pumping stations, and 2 wastewater treatment plants. Since then, the two treatment plants have been converted to pumping stations, adding approximately another mile of forced mains. The work has typically consisted of meeting attendance, assistance with capital budget, permitting assistance, negotiations of inter-municipal agreements, grant application preparation, preparation of plans and specifications for ongoing projects, preparation of the annual Chapter 94 reports, and review of developer-proposed projects.

Some of the recent project work that has been completed are presented below.

- The Kittyhawk Pumping Station Project in which the Kittyhawk Sewage Treatment plant was replaced by a pumping station.



The gravity sewer system was redirected to accommodate the pumping station. The existing sewage treatment plant was demolished, and the National Pollution Discharge Elimination System (NPDES) permit was closed.

- The Pleasant View Pumping Station Rehabilitation Project that involved replacement in kind for all of the mechanical and control equipment.
- The Pleasant View Pumping Station, Site Improvements, and Emergency Generator Project that involved re-contouring the site to create an entrance drive, the addition of an emergency generator and automatic transfer switch, and significant site landscaping.
- The Ramsey Run Pumping Station Project which included upgrading the motor control center, the control panel, telemetry, and alarm system.
- The Robertshaw - Indiana University of Pennsylvania Sewer Replacement Project in which an orphan sewer that runs through the University's facilities is being upgraded to meet the Authority's standards and will then be assumed by the Authority. This project was primarily funded through the successful application for grant funding.



## Conewago Industrial Park Wastewater Treatment System Expansion Elizabethtown, Lancaster County, Pennsylvania

### Client/Owner

Conewago Industrial Park Water  
and Sewer Company

### Estimated Project Value

Total: \$2,700,000  
Firm Responsibility: \$2,700,000

### Completion Date

October 2015

### Key Components

Wastewater Treatment System  
Design; Wastewater Treatment  
System Construction;  
Wastewater Treatment System  
Start-up Services

### Reference Contact

Mr. Martin Murray  
P.O. Box 332  
Lemoyne, PA 17043  
P: 717-766-3000



When the Conewago Industrial Park Sewer and Water Company (CIP) reached an agreement with Nordstrom, Inc., that would lead to construction of a new 672,000 square foot warehouse facility employing a peak projection of 700 full-time workers, it became clear that a major improvement would be required in advance of a planned late Spring 2015 occupancy. The existing CIP wastewater treatment system, constructed in the 1970's, was quickly approaching its treatment capacity and discharge level limits. Estimated sewage loads for the new facility and anticipated future growth elsewhere in the park led CIP to commit to a treatment plant upgrade.

The owner of the CIP wastewater treatment system engaged Skelly and Loy and its wholly-owned AMS of Skelly and Loy construction subsidiary to design the required upgrades and prepare the applications required for permitting of upgrade and expansion of the existing sewage treatment plant serving the park's business residents, then build the resulting project. The \$2.7 million project more than doubled the plant's peak treatment capacity to 150,000 gallons per day. Additionally, chronic solids settling problems associated with the original plant were corrected and discharge water quality has been significantly improved.

Design began with a review of Pennsylvania Department of Environmental Protection-mandated discharge limits and an evaluation of nutrient removal requirements, followed by evaluation of several potential

treatment system upgrade options. Ability to meet discharge quality limits, ease of operation, capital cost, operations and maintenance costs, and likely regulatory acceptance were considered, resulting in a recommendation to employ a new sequencing batch reactor (SBR) system while converting existing treatment units for future sludge handling. With DEP's approval, Skelly and Loy proceeded with final design and local building permit application preparation.

With permits in hand, the AMS team finalized the construction cost and, in its role as general contractor, began installation. In-house AMS personnel performed all the site preparation and excavation work, treatment equipment installation, piping fabrication and installation and other general site work, with pre-fabricated concrete tank fabrication and installation and electrical systems installation performed by subcontractors.

Although facility construction began in July 2014 immediately upon receipt of the DEP construction permit, the winter's extended below-freezing temperatures and frequent precipitation resulted in challenging working conditions that threatened to extend the overall project schedule significantly. Yet start-up of the upgraded treatment system was still achieved in May 2015, just in time for the opening of the new Nordstrom facility. Following start-up, the existing treatment tank was retro-fitted to serve as a sludge processing tank. All additional site restoration and landscaping work was completed by October 2015.



## Sandhill Pump Station Improvements, City of Lebanon Authority Lebanon, Pennsylvania

**Client/Owner**  
City of Lebanon

**Estimated Project Value**  
Total: \$100,000  
Firm Responsibility: \$50,000

**Completion Date**  
March 2007

**Key Components**  
Construction of Sandhill Pump  
Station Improvements

**Reference Contact**  
Mr. Ron Lucio  
400 South 18th Street  
Lebanon, PA 17042  
P: 717-865-2191



The City of Lebanon Authority provides approximately 250,000 people with municipal sewer service in Lebanon County Pennsylvania. The Authority needed to upgrade the aging Sandhill pumping station to increase capacity and ensure safe and reliable operations.

AMS of Skelly and Loy, Inc. (AMS) was awarded the contract to perform the pumping station upgrades. The work effort included demolition of two old pumping systems and the installation of new systems. AMS

performed the general construction work including plumbing, mechanical, electrical, and concrete construction. The old 6-inch ductile iron piping was removed from the pumping station and replaced with new piping. The old concrete pump pads were retrofitted to accommodate two new 15-horsepower (hp) pumps. A new 12-hp motor was installed on a third pump. The project was successfully completed on time and within budget, and the pumping station continues to operate reliably.

## Maintenance Activities, Construction of Bypass System, and Repair of Equalization Tank at the Exelon Nuclear Power Station Wastewater Treatment Plant Peach Bottom Township, Delta, York County, Pennsylvania

### Client

Exelon Generation Company

### Estimated Project Value

Bypass Project: \$245,000

Maintenance (since 2005):

\$407,000

### Completion Date

Bypass Project: October 2010

Maintenance: Ongoing

### Key Components

Wastewater Treatment Plant

Maintenance; Installation of

Bypass System; Repair of

Equalization Tank

### Reference Contact

Mr. Joseph Brozolis, P.E.

Senior Environmental Chemist

Exelon Generation Company

Peach Bottom Atomic Power

Station

1848 Lay Road

Delta, PA 17314

P: 717-456-3795



AMS of Skelly and Loy, Inc. (AMS) has performed various maintenance activities at Exelon's Peach Bottom Atomic Power Station wastewater treatment plant since 2000, including the inspection, repair, and replacement of pumps, gauges, sensors, chemical feed units, piping, and other components. In conjunction with these efforts, it was determined that the existing steel equalization (EQ) tank at the plant was in need of internal structural repairs and repainting. After discussing repair or replacement options with Skelly and Loy personnel, Exelon contracted with AMS to perform the tank repairs in the summer of 2010. The work had to be performed during warm, dry summer weather but completed prior to the outage of the plant reactors for refueling.

The first phase of the project was the engineering design, permitting, and installation of bypass piping and a comminutor in order to reroute wastewater around the EQ tank. AMS, working in conjunction with Skelly and Loy's Environmental Engineering Service Group, obtained the

required Pennsylvania Department of Environmental Protection permit and installed the bypass piping and grinder unit. The bypass piping and comminutor installation was completed on schedule, successfully tested, and put into service. Following installation and startup, AMS worked with a local subcontractor to insulate the new bypass piping and appurtenances in preparation for the winter.

After pumping, cleaning, and initial shotblasting of the EQ tank, it was discovered that more intensive repairs of the internal metal supports would be required prior to final blasting and repainting of the tank. AMS quickly coordinated with the client, a painting subcontractor, and a local welding fabrication shop and assembled an experienced work crew to complete the additional repairs. The painting subcontractor was able to remobilize to another job site in the area while the tank was being repaired. Repairs were successfully completed, and the tank was painted, tested, and put back into service in time for the outage, which resulted in a very pleased client.





## Arch Rock Subdivision Groundwater Supply Development Fermanagh Township, Juniata County, Pennsylvania

### Client

John E. Groninger, Inc.

### Project Value

Total \$501,300

### Completion Date

2008

### Key Components

Groundwater Supply Assessment; Site Hydrogeology Examination; Aquifer Testing; Permitting; Supply Well Installation; Potable Water Treatment System Design; Land Development Design; Wastewater Systems Design and Installation; Construction Inspection and Certification

### Reference Contact

Mr. David M. Bomberger  
John E. Groninger, Inc.  
P. O. Box 36  
Mexico, PA 17056-0188  
P: 717-436-6982



Skelly and Loy, Inc. was retained by John E. Groninger, Inc. to perform land development design; design potable water source, treatment, storage and distribution systems as well as wastewater collection and treatment systems to serve an area adjacent to the Arch Rock exit of U.S. Routes 22 and 322. These systems were needed to serve 89 apartment and townhome residences as well as two existing commercial buildings and a future commercial establishment.

Land development task included the layout of 6 apartment buildings as well as the associated access roads and parking areas. The layout needed to meet zoning and land development ordinances, while maintaining the required well head protection for the two water supply wells for the development. Stormwater management was critical for this project. Design of the water service piping and wastewater sewers for this development were also included in this task.

Potable water tasks on this project include the evaluation of current and projected water demands, examination of the site hydrogeology for meeting future anticipated demand, installation of two new source supply wells, aquifer testing, design of system treatment consisting of chlorination, and design of system water storage and distribution systems.

Skelly and Loy prepared the detailed design drawings and specifications for the installation of the potable water treatment, storage and distribution system. Due to the excellent quality of the ground water



source for this development, the only treatment required was disinfection. A 100,000 gallon glass lined metal storage tank was selected for finished water storage at this site. A looped distribution system was installed to serve all existing and proposed development. The Public Water Supply permit application and associated modules were prepared and submitted to the Pennsylvania Department of Environmental Protection (PA DEP) for approval. Construction inspection and certification was also performed.

Wastewater tasks on this project began with the development of projected sewage quality and quantity estimates for the proposed development and the preparation and submission of the sewage planning modules to the township and the PA DEP. Upon planning approval, the NPDES discharge permit application was prepared and submitted to PA DEP for the determination of preliminary discharge limits. With limits in hand, the detailed design including plans and specifications were prepared for a 40,000 gallon per day treatment system. The treatment system permit application package including the Design Engineer's Report and the modules was prepared and submitted to PA DEP for approval. Construction inspection and certification was also performed.

Skelly and Loy was selected to install the wastewater treatment plant tanks, components, controls, and sensors in a design build capacity. Skelly and Loy also provides certified operations for this wastewater treatment system.

## Green Stormwater Infrastructure Projects Philadelphia, Pennsylvania

### Client

Philadelphia Water Department

### Estimated Project Value

(17 GSI projects)

Total: >\$5 million

Firm Responsibility: >\$1 million

### Completion Date

2005 - present

### Key Components

Site Assessments; Green Stormwater Infrastructure (GSI); Urban Stormwater Management (SWM); Low Impact Development (LID); SWM Planning and Design Concepts; BMP Alternatives Evaluation and Design; Construction Oversight; Post-Construction Monitoring; Urban Trail Planning; Natural, Cultural, & Historical Resources Environmental Permitting

### Reference Contact

Philadelphia Water Department  
Aramark Tower, 5th Floor  
1101 Market Street  
Philadelphia, PA 19107-2994  
Mr. Frank Mawson, Jr., P.E.  
717-787-9849  
Mr. Rick Howley, 215-685-6034



Philadelphia Water (PW) provides integrated water, wastewater, and stormwater services to the Greater Philadelphia region. As part of PW's Green Streets program, impervious surface runoff is captured and diverted to green stormwater infrastructure (GSI) to reduce the magnitude and frequency of combined sewer overflows (CSOs) in the watershed.

Skelly and Loy has provided ongoing stormwater consulting services to PW since 2005. In this capacity, Skelly and Loy has:

- Performed assessments identifying high priority stormwater projects to protect threatened infrastructure
- Refined planning assessments to enhance contemplated GSI projects and further reduce CSOs
- Provided stormwater and GSI permitting, design, and construction oversight services
- Deployed synergistic designs that employ best management practices (BMPs) for CSO consent decree compliance
- Integrated existing landscape features to minimize GSI maintenance
- Increased captured stormwater

- well beyond PW site-specific goals
- Provided solutions for stormwater volume removal at per acre-inch costs lower than PW's average costs
- Improved community aesthetics and park amenities
- Facilitated public involvement and achieved stakeholder consensus

**To date, Skelly and Loy has performed more than 70 assessments on PW's behalf, with 25 designed in detail and 17 projects constructed, all incorporating GSI.** The total cost of these GSI projects is well over \$5 million, with our firm's responsibility over \$1 million. The summaries provided on the following page highlight a few of the more notable constructed projects.

**Wister's Woods Park** – This project features four infiltration basins that capitalized on existing ground surface depressions in lieu of new storage facility construction. The project is designed to manage 207,638 square feet of impervious drainage. The resulting 9.7 acre-inch reduction of stormwater from combined sewer flow is a fivefold increase over the 1.7 acre-inch



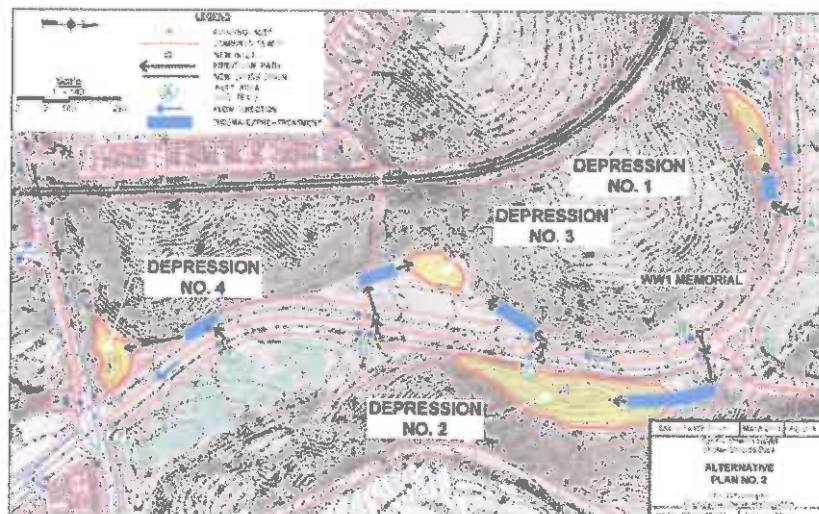


anticipated by PW. The use of existing depressions as a pretreatment of fine sediment prior to the filtration media is a common feature in Skelly and Loy's design solutions, naturally preventing clogging and significantly reducing maintenance costs. In addition, capital investment is dramatically reduced, in this case, providing GSI at the rate of \$77,200 per acre-inch of stormwater removal, compared with target rates of \$200,000 to \$250,000 per acre-inch.

**Kemble Park** – This project was the largest and most complex of its kind in Philadelphia at the time of its construction. Design features include two rain gardens at either end of the park connected by a bioswale along Ogontz Avenue. New "green inlets," independent of the combined storm and sanitary sewer, provide pretreatment of collected runoff. This integrative design employs meadow plants that require no fertilizers and minimal maintenance following establishment. The final design manages 227,050 square feet of impervious area, reducing managed stormwater by 10.23 acre-inch, more than eight times greater than the 1.2 acre-inches anticipated in PW's preliminary study. Skelly and Loy also worked closely with the community to adjust the landscaping

plantings to improve aesthetics and address public safety concerns associated with potential hiding locations among the plantings, given the history of crime in the park.

**Fountain Street Steps** – These steep public stairways provide an essential neighborhood pedestrian connection, built over a large diameter brick stormwater conduit conveying stormwater from higher elevations and outlets to the Manayunk Canal. Skelly and Loy's solution combined GSI and conventional stormwater inlets, pipes, and endwalls, yielding a sustainable improvement far exceeding the base minimum of infrastructure repair. Two large planter boxes capture flow from granite-lined gutters along either side of the steps. Bioretention soil, herbaceous plants, and shrubbery are planned for recently constructed planter boxes. These boxes will provide storage and infiltration for stormwater runoff, dampening the erosive velocities of street overflows in this urban setting. Additionally, the filtration provided in the tree pits will reduce runoff temperature and enhance water quality.



## Stream "Daylighting" and Sewer Flow Removal via Natural Stream Channel Restoration Various Locations

**Client**  
Various

**Completion Date**  
2007 - Present

### Key Components

Channel Daylighting;  
Combined Sewer Overflow  
Reduction; Gully and  
Streambank Stabilization;  
Woodland Replanting and  
Renewal; Stormwater  
Management; Water Quality  
Monitoring and Analysis;  
Hydrologic Analysis; Limited  
HTRW Investigation; Fluvial  
Geomorphologic Assessment  
Construction Management  
Construction Inspection

### Reference Contacts

#### *Sheraden Run*

Mr. Thomas J. Maier  
USACE - Pittsburgh  
Moorhead Federal Building  
1000 Liberty Avenue  
Pittsburgh, PA 15222-4186  
P: 412-395-7219

#### *Brightbill Park Woods*

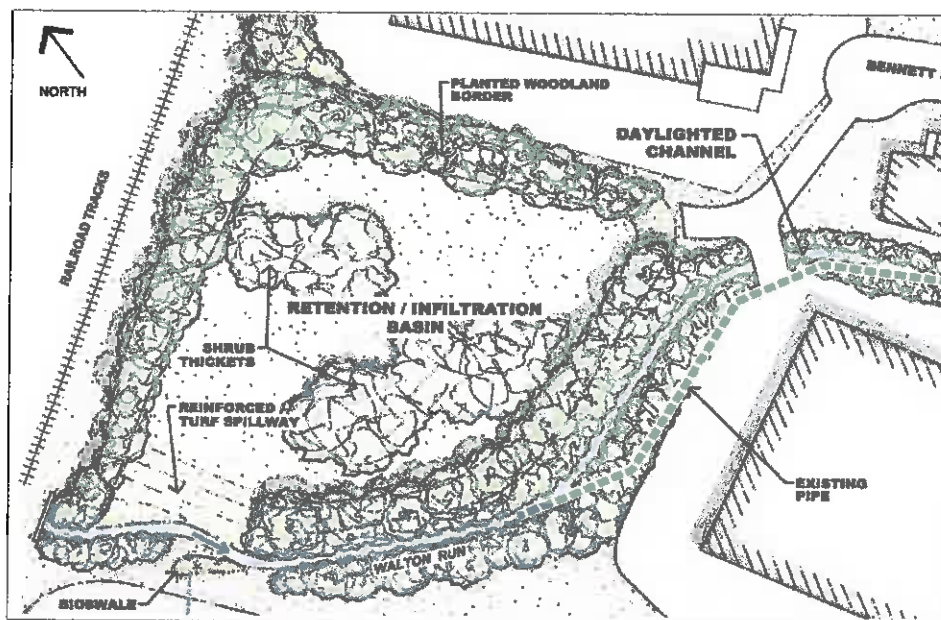
Ms. Lynn Wuestner, Director  
Paxton Township Parks &  
Recreation Department  
5000 Commons Drive  
Harrisburg, PA 17112  
P: 717-657-5635

#### *Kennett Square Stream*

Mr. Paul Stead  
Square Gold and Country Club  
100 East Locust Lane  
Kennett Square, PA 19348  
P: 610-444-523

#### *Walton Run*

Philadelphia Water Department  
Aramark Tower, 5th Floor  
1101 Market Street  
Philadelphia, PA 19107-2994  
Mr. Frank Mawson, Jr., P.E.,  
717-787-9849  
Mr. Rick Howley, 215-685-6034



The daylighting of enclosed (piped) streams in developed landscapes can result in multiple environmental benefits, including significant volume removal from sewer systems, stream and riparian wildlife habitat and habitat connectivity restoration, energy dissipation for flood relief, and amenity improvement. Greater boundary layer roughness in vegetation-lined and/or boulder-strewn open channels provides greater flood flow attenuation versus smooth pipes. In addition to restoration of actual streams, piped stormwater conveyances can likewise be daylighted, providing similar benefits. Removing stream flow from sewer systems as part of wet weather planning is a strategy that complements more "traditional" green stormwater infrastructure (GSI) measures.

Skelly and Loy has designed and installed daylighted stream and stormwater channels in a number of locations and is engaged in planning of several other such projects. Once

a stream is revealed, channel restoration approaches are generally no different than those used in conventional restorations since open but deeply incised and straightened streams are roughly comparable to piped streams in terms of their lack of beneficial function.

Skelly and Loy's extensive natural stream channel restoration design and construction experience includes more than 50 projects and hundreds of native species vegetation plans, for clients such as Pennsylvania Department of Transportation and West Virginia Department of Transportation. When identifying least cost opportunities to reduce combined sewer overflows, stream removal and natural channel restoration projects are typically at the 'top' of Skelly and Loy's recommendation list given the often lower capital investment cost per annual volume removed. In addition, stream removal projects improve aesthetics and public amenities, leading toward improved public





acceptance and consensus for the proposed project.

Among Skelly and Loy's more notable daylighting projects are the following:

***Sheraden Run Ecosystem Restoration Project, Pittsburgh, PA*** - This project involved separation of stormwater from a combined sewer overflow system, daylighting and naturalization of 500 feet of enclosed stream channel, aquatic enhancement of an additional 800 feet of multithreaded channel crossing a broad delta area and restoration of associated wetland areas. Additional natural resources work performed including invasive species identification, as well as field surveying.

***Brightbill Park Woods Stormwater Channel Stabilization and Site Improvements, Dauphin County, PA*** - This was a multi-phased project including channel stabilization design and construction, forest and native plant revegetation, and daylighting of a 325-foot-long stormwater pipe draining much of the park's main parking area. The pipe was converted into a step-pool channel (with adjoining soakaway zones) which traverses through the revegetated forest. The naturalized channel provides storm flow

attenuation and discharges to the main channel just before it leaves the woods. Most critically, significant water volume has been removed from the storm sewer system.

***Kennett Square Stream Daylighting, Chester County, PA*** - This project involved daylighting the piped channel of a headwater stream tributary to the East Branch of Red Clay Creek. This small first-order stream is located on the Kennett Square Golf and Country Club, where the daylighting was part of a multi-phased restoration approach involving floodplain restoration along the mainstem, as well as reforestation of parts of the course. Margins of the new open channel were planted with native herbaceous perennials to create an attractive pollinator garden.

***Walton Run Daylighting Project, Philadelphia, PA*** - This active project, now entering its final design stage, is part of a larger project designed to reduce stormwater discharge from an urban industrial area. The daylighting of a piped segment of Walton Run and the creation of large depressed 'embayment' for flood storage will greatly reduce stormwater flows from this largely impervious area, greatly reducing the combined sewer overflow problem in this part of the City.



## Kemble Park Green Stormwater Infrastructure Design Philadelphia, Pennsylvania

### Client

Philadelphia Water Department

### Estimated Project Value

Total: \$1,799,000

Firm Responsibility: \$175,855

### Completion Date

Fall 2014

### Key Components

Green Stormwater Infrastructure (GSI), Urban Stormwater Management (SWM), Low Impact Development (LID) Applications, SWM Planning and Design Concepts

### Reference Contact

Philadelphia Water Department  
Aramark Tower, 5th Floor, 1101  
Market Street  
Philadelphia, PA 19107-2994  
Mr. Frank Mawson, Jr., P.E.,  
717-787-9849  
Mr. Rick Howley, 215-685-6034



Kemble Park is located in the Logan Neighborhood of the Tookany-Tacony/Frankford Creek Watershed in Philadelphia. The park is bounded by Kemble Avenue, Ogontz Avenue, Olney Avenue, North 16th Street, and Chew Avenue. The park has significant slope with more than 30 feet of vertical change between the high point along Chew Avenue and the basin floor of the constructed rain garden at the northeast corner of Ogontz and Olney Avenues.

The design is part of Philadelphia Water Department's (PWD) Office of Watershed's Green Streets program. Projects under this program capture runoff from the adjacent streets and divert this to Green Stormwater Infrastructure (GSI) to reduce the magnitude and occurrence of combined sewer overflows (CSOs) in this watershed.

When constructed, the Kemble Park GSI SWM system was the largest and most complex project of its kind Philadelphia. The design features two rain gardens at either end of the park connected by a bioswale along Ogontz Avenue. New "green inlets," that are not connected to the combined storm and sanitary sewer provide pretreatment of collected runoff. The green inlets divert flow from Chew



Avenue, 17th Street, and Ogontz Avenue into the upper rain garden (southeast of Ogontz Avenue and Chew Avenue). An existing hill within the park was reshaped to create a uniform arc and the resulting landform was revegetated with widely spaced trees over a carpet of low maintenance shrubbery, wildflowers, and grasses. The serpentine swale, reminiscent of a pastoral streambed, connects the upper and lower rain gardens, intercepts runoff from the park's wooded hillside, and accepts diverted Ogontz Avenue runoff via cobblestone runnels and outlet aprons. The floor of the bioswale and rain gardens features meadow plants and grasses that require no fertilizers and minimal maintenance following the establishment period.

The lower rain garden is situated northeast of the intersection of Ogontz Avenue and Olney Avenue. The rain garden collects runoff from both streets via green inlets. Irregular in shape, the rain garden is both a stormwater management facility and an interesting land sculpture. Revegetation uses meadow plantings to transition from forest to open playing fields.

Three other independent GSI facilities that capitalize on the good infiltrative quality of Kemble's soil are located in the northeast section of the park. Two





are positioned along Chew Avenue and the third is mid-block along North 16th Street. These systems treat runoff from the residential neighborhood east of the park. The facilities consist of broad subsurface infiltration trenches packed with modular underground storage crates that manage a significant volume of runoff due to their void ratio of 96%. Underground storage will preserve the large open fields in this area for dog walking and active recreational purposes, as requested by Philadelphia Parks and Recreation (PPR).

The project is an excellent example of Skelly and Loy's ability to value engineer, conceptualize, and facilitate public involvement.

Skelly and Loy's initial affiliation with the Kemble Park project was an outgrowth of an as-needed PWD consulting contract primarily intended to provide guidance to the PWD to mitigate stormwater runoff impacts where there was damage threat to PWD-owned infrastructure. For these requests, Skelly and Loy assessed existing site characteristics, evaluated the source of the threat, prioritized intervention measures, and provided conceptual and/or detailed design solutions. As part of the on-demand work effort, PWD requested the Skelly and Loy team to evaluate an existing preliminary concept plan for the Kemble Park stormwater management project identified in PWD's *Open Space Stormwater Management Tacony-*

*Frankford Watershed* report. The resulting direction from the prioritization memo advised PWD to consider more effectively located and larger capacity GSI. The finally implemented Skelly and Loy design manages 227,050 square feet of impervious area and accounts for 10.23 greened acres, which is over 8 times greater reduction than the 1.2 greened acres anticipated in PWD's preliminary study. (Greened acres is the unit of measurement used by PWD in their CSO compliance tally that equates to 1 inch of managed stormwater from 1 acre of impervious drainage area, or 27,158 gallons of stormwater.)

Skelly and Loy was also instrumental in public outreach for the Kemble Park project. Just prior to the beginning of construction, the local neighborhood association expressed its concern about the closely spaced native plantings proposed for the rain gardens. The principal concern was related to both public safety (the small patch of woodland in the park had been a crime site) and aesthetic aspects of the planting scheme. At the direction of PWD and PPR, Skelly and Loy worked closely with the neighborhood committee to redesign the landscaping to their satisfaction, creating a planting scheme that eliminated potential hiding places and stressed very showy native plantings, with blooms occurring throughout the growing season. The resulting landscape that is responsive to the neighborhood provides a visual character that is unique to Kemble Park.



## Quittapahilla Creek Sustainable Stormwater Management Lebanon County, Pennsylvania

### Client

Lebanon Valley Conservancy

### Estimated Project Value

Total: \$76,000

### Completion Date

Ongoing

### Key Components

Sustainable Stormwater  
Management, Passive  
Stormwater Treatment, Water  
Quality Improvements,  
Stormwater Pollutant Removal

### Reference Contact

Mr. David Laskey  
610 East Walnut Street  
Annville, PA 17003  
P: 717-867-4837



The Quittapahilla Creek watershed is located in southcentral Pennsylvania within the **Chesapeake Bay** drainage system. Skelly and Loy, Inc., working in partnership with Clear Creeks Consulting, the Lebanon Valley Conservancy, and the Quittapahilla Creek Watershed Association, completed an overall assessment of the condition of the watershed. This assessment included a comprehensive analysis of stormwater quality, in-stream habitats, stream geomorphic conditions, and other physical attributes of the watershed. With approximately 15% of the land area in the watershed being in an urbanized condition, a significant effort was oriented toward identifying impacts that were attributable to this urbanized condition.

**Sediment supply** from urban sources was identified as the single most significant impact occurring within the watershed with secondary impacts

experienced from **elevated nutrient** contributions received from agricultural sources surrounding the urban areas. With these impacts identified, the project then evaluated and developed recommendations for **retrofit stormwater Best Management Practices (BMPs)** that could be implemented to begin to mitigate these impacts and contribute to the **environmental sustainability of the watershed.**

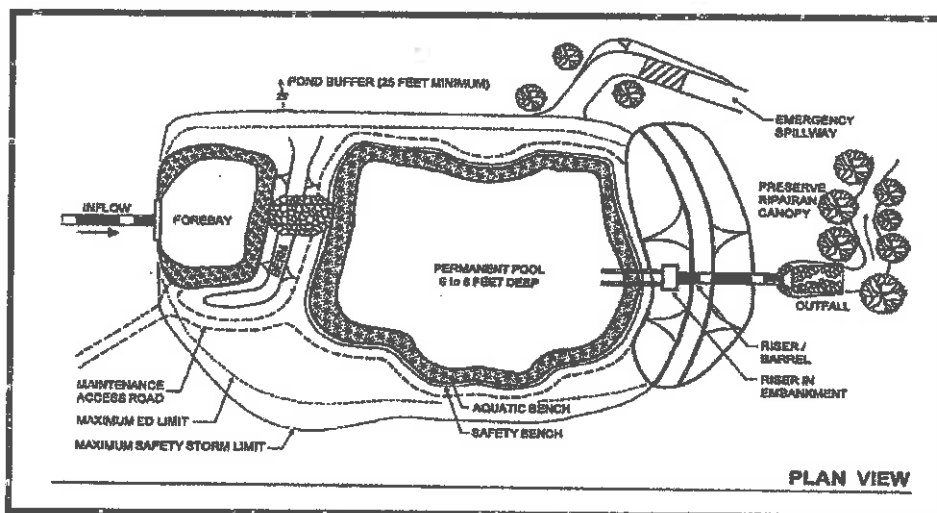
A series of **12 stormwater wetland ponds** was conceptually designed for several BMP site locations throughout the watershed to reduce peak discharges for the storm events and to provide intrinsic water quality benefits to the stream. Typical extended detention wet pond designs provide a three- to five-foot deep permanent pool with additional temporary storage area above the permanent pool for **passively treating** and attenuating stormwater runoff for



storm events. The effect of placing these stormwater wetland ponds at various locales in the watershed was modeled using HEC-HMS and the **AVGWLF Water Quality model** to determine the magnitude of improvements that would be realized. As modeled, the BMPs successfully reduced the bankfull discharges to within 10% of the pre-urbanized flows along the main stem of Quittapahilla Creek.

Additionally, the standing volume of water within the wetland pond will provide opportunity for **settling and removal of sediments** and provide a residence time in the pond long enough for the biological community to **remove nitrogen and phosphorus** from the waters that will be entering the BMPs. This design approach requires **zero external energy input** other than an estimated biannual sediment removal effort. The

combined effect of the pollutant removal properties of each BMP was analyzed to determine the level of nitrogen, phosphorus, and sediment reduction that would be seen along the main stem of Quittapahilla Creek. These combined efficiencies were calculated to achieve up to a **39% pollutant removal**.





Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

State of West Virginia  
Centralized Expression of Interest  
02 – Architect/Engr

Proc Folder: 375545

Doc Description: Parks-A/E Services for Tomlinson Run Bathhouse

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2017-09-14	2017-10-17 13:30:00	CEOI 0310 DNR1800000002	1

**BID RECEIVING LOCATION**

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

**VENDOR**

Vendor Name, Address and Telephone Number:

**FOR INFORMATION CONTACT THE BUYER**

Brittany E Ingraham

(304) 558-2157

brittany.e.ingraham@wv.gov

Signature X

FEIN # 82-1385831

DATE October 13, 2017

All offers subject to all terms and conditions contained in this solicitation




**DESIGNATED CONTACT:** Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Name, Title)  
Thomas Pritts, Member  
(Printed Name and Title)  
37 ER Path, Keyser, WV 26726  
(Address)  
304-276-7151  
(Phone Number) / (Fax Number)  
tom@montumarch.com  
(email address)

**CERTIFICATION AND SIGNATURE:** By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Montum Architecture, LLC

(Company)  
 MEMBER  
(Authorized Signature) (Representative Name, Title)

Thomas Pritts, Member  
(Printed Name and Title of Authorized Representative)

October 13, 2017  
(Date)

304-276-7151  
(Phone Number) (Fax Number)

STATE OF WEST VIRGINIA  
Purchasing Division**PURCHASING AFFIDAVIT**

**MANDATE:** Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

**EXCEPTION:** The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**DEFINITIONS:**

**"Debt"** means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

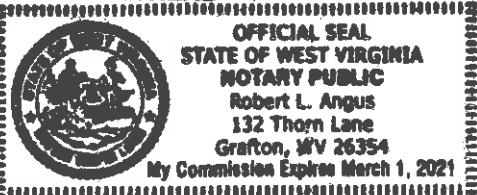
**"Employer default"** means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

**"Related party"** means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**AFFIRMATION:** By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

**WITNESS THE FOLLOWING SIGNATURE:**Vendor's Name: Montum Architecture, LLCAuthorized Signature: [Signature] Date: October 12, 2017State of West VirginiaCounty of Taylor, to-wit:Taken, subscribed, and sworn to before me this 12<sup>th</sup> day of October, 2017.My Commission expires March 1, 2021.

AFFIX SEAL HERE



NOTARY PUBLIC

[Signature]

Purchasing Affidavit (Revised 07/01/2012)

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.:**

**Instructions:** Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

**Acknowledgment:** I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

**Addendum Numbers Received:**

*(Check the box next to each addendum received)*

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2            | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Montum Architecture, LLC

Company \_\_\_\_\_

  
Authorized Signature \_\_\_\_\_

October 13, 2017

Date \_\_\_\_\_

**NOTE:** This addendum acknowledgment should be submitted with the bid to expedite document processing.